01.00 GENERAL SAFETY

1.00 Corporate Policy Statement

The Occupational Safety and Health Act of 1970 clearly states our common goal of safe and healthful working conditions. The safety and health of our employees continues to be the first consideration in the operation of this business. Safety and health in our business must be a part of every operation. Without question it is every employee's responsibility at all levels. It is the intent of Hausmann Construction Inc. to comply with all laws. To do this we must constantly be aware of conditions in all work areas that can produce injuries. No employee is required to work at a job he or she knows is not safe or healthful. Your cooperation in detecting hazards and, in turn, controlling them is a condition of your employment. Inform your supervisor immediately of any situation beyond your ability or authority to correct. The personal safety and health of each employee of Hausmann Construction Inc. is of primary importance. The prevention of occupationally induced injuries and illnesses is of such consequence that it will be given precedence over operating productivity whenever necessary. To the most reasonable degree possible, management will provide all mechanical and physical facilities required for personal safety and health in keeping with the highest standards. We will maintain a safety and health program conforming to the best management practices of organizations of this type. To be successful, such a program must embody the proper attitudes toward injury and illness prevention not only on the part of supervisors and employees, but also between each employee and his or her co-workers. Only through such a cooperative effort can a safety program in the best interest of all be established and preserved.

Our objective is a safety and health program that will reduce the number of injuries and illnesses to an absolute minimum, not merely in keeping with, but surpassing, the best experience of operations similar to ours. Our goal is nothing less than zero accidents and injuries.

2.00 Company Safety Contacts

- Kenny Thompson - Safety Director (Mobile:402-937-3304)
- Matt Schendt- Vice President (Mobile:402-416-7261)
- Chad Wiles- Vice President (Mobile: 402-318-2419)
- Holly Baete- Director of Human Resources (Mobile: 402-405-6092)

3.00 SAFETY POLICY & PROCEDURE

It is the direction of Hausmann Construction Inc. that all employees are entitled to a safe and healthful place in which to work. To this end, every reasonable effort is made in the interest of incident prevention, health preservation, and employee involvement. Working safely is a constant yet ever changing problem in the construction industry. Construction work by its very nature presents a wide variety of ever changing hazards. Hausmann Construction Inc. has implemented our safety and health procedures based upon the types of work Hausmann Construction Inc. performs and the trades it employs. The Occupational Safety and Health Administration in coordination with the National Institute for Occupational Safety and Health and The American National Standards Institute, as well as other regulatory and standard promulgating agencies, have contributed to formulate the standards which we have adopted and will follow. Most of the procedures are copied and/or interpreted from the Code of Federal Regulations Number 29 1910 Standards for General Industry and 1926 Standards for the Construction Industry. These regulations should be consulted for the exact and detailed requirements.

Hausmann Construction Inc. has proven its success by reducing the number and the severity of accidents and injuries. A firm commitment from Hausmann Construction Inc. management throughout the company involves all employees in providing a safe and healthy working environment.

SAFETY IS EVERYONE'S RESPONSIBILITY
EXPERIENCE HAS SHOWN THAT THERE IS VIRTUALLY NO HAZARD THAT CANNOT BE OVERCOME BY PRACTICAL SAFETY PROCEDURES & PROCESSES

3.01 GENERAL SAFETY RULES

The following are general safety rules established by Hausmann Construction Inc.:

- Never operate any machine or equipment unless you are authorized and trained to do so.
- Do not operate defective equipment. Do not use broken hand tools. Report them to your supervisor immediately.
- Obtain full instructions from your supervisor before operating a machine with which you are unfamiliar.
- Never start on any hazardous job without being completely familiar with the safety techniques which apply to it. Check with your supervisor if in doubt.

- Make sure all safety attachments are in place and properly adjusted before operating equipment.
- Do not operate any machine or equipment at unsafe speeds. Shut off equipment which is not in use.
- ANSI Z87 rated safety glasses, hard hat, and Hi Vis shirt or vest to be worn on the job at all times. Class 2 Hi Vis shirts or vests maybe required on some projects. Proper foot wear consists of a work boot that covers your ankle and has a substantial sole. Tennis shoes are not allowed. Requirements for safety toe are task specific and identified further in the PPE section of the manual.
- Do not wear loose, flowing clothing while operating moving machinery.
- Never repair any machine or equipment unless you are specifically authorized to do so by your supervisor.
- Never oil, clean, repair, or adjust any machine while it is in motion.
- Never repair or adjust any electrically driven machine while connected to power source.
- Put tools and equipment away when they are not in use.
- Do not lift items which are too bulky or too heavy to be handled by one person. Ask for assistance.
- Stack all materials neatly and make sure piles are physically and visually stable.
- Keep your work area and equipment which you use clean and neat.
- Do not participate in horseplay or tease or otherwise distract fellow workers.
- Powered equipment operators must safeguard other workers at all times. Workers must show courtesy to powered equipment operators.
- Filing cabinets, storage cabinets, and other storage devices should have drawers/doors closed when not in use to prevent tripping hazards.
- Burned out light bulbs should be replaced immediately.
- Frayed or damaged electrical cords should remove from service and replaced or properly repaired.
- Never take chances. If you are unsure, you are unsafe!
- Ask for help; use your knowledge of the task's safe work procedures to be your guide.

02.00 AERIAL WORK PLATFORMS

1.0 OBJECTIVE

The objective of this procedure is to set up guidelines for the proper selection and safe operations of aerial work platforms used on Hausmann Construction, Inc. projects.

2.0 PURPOSE

The purpose of the procedure is to prevent incidents during the use of aerial work platforms.

This procedure applies to the following machines:

- Extensible boom aerial devices
- Articulating boom aerial device
- Vertical towers
- Manual or self-propelled platforms supported by scissors, masts, or booms

3.0 SPECIFICATIONS FOR AERIAL LIFTS

3.1 Only elevated work platforms meeting American National Standards Institute (ANSI) standards A92.3, A92.5, and A92.6 will be selected and used.

3.2 Current inspection reports (pre-delivery and annual) for aerial platforms must be provided by vendor. Inspection reports will be kept on the jobsite during the project and will become part of the project file.

3.3 Operating manuals for the aerial work platform will be kept with the unit.

3.4 Only appointed qualified personnel who have received training for the aerial platform (type and model) will run an aerial work platform.

3.5 Boom-supported aerial work platforms will be equipped with an alarm or other suitable warning device at the platform. The alarm must be operable and must automatically activate when the machine base is more than 5 degrees out of level in any direction.

3.6 Aerial work platforms will not be field-modified and shall only be used according to the manufacturer's recommendations. Any modifications made to an aerial work platform must be certified in writing by the manufacturer or by a nationally recognized testing laboratory to be in compliance with the applicable ANSI standard and to be at least as safe as the equipment was before modification.

3.7 Only aerial work platforms rated as insulated aerial devices will be used around energized power lines.

3.8 The aerial work platform will be selected for the hazardous environment and terrain in which it will be used. Aerial platforms used in hazardous locations will meet ANSI requirements or the requirements of National Fire Protection Association (NFPA) standard 505-1987 for use in hazardous locations.

4.0 MAINTENANCE AND TESTING

4.1 Each aerial work platform will be maintained, repaired, and kept in proper working condition under the manufacturer's or owner's operating or maintenance and repair manuals.

4.2 Without a qualified mechanic (trained for the specific type and model of the device to be serviced), a representative of the manufacturer will service the aerial lift platform.

4.3 After repair or replacement of any part, the unit will be inspected and tested by a competent employee.

4.4 If the aerial work platform is rated and used as an insulated aerial device, the electrical insulating parts will be tested for compliance with the rating of the aerial work platform under ANSI Standard A92.2.

5.0 INSPECTION SCHEDULE

5.1 A qualified mechanic in the following situations will conduct an inspection:

- According the rental or manufacturer inspection schedule, whichever provides the greatest level of protection.
- Whenever there may be cause to conduct an inspection

The inspection will include all items named by the manufacturer for an inspection.

5.2 An annual inspection will be performed on the aerial platform before 13 months from the date of the prior annual inspection. The inspection will include all items named by the manufacturer for an annual inspection.

5.3 The operator will conduct a pre-operational inspection at the beginning of each day or at the beginning of each shift. The aerial platform will be given a visual inspection and functional test including but not limited to the following:

- Fluid and fuel levels
- Working and emergency controls, including ground control
- Safety devices, including the foot switch
- Personal protection devices, including fall protection
- Air, hydraulic, and fuel system leaks
- Cables and wiring harness
- Loose, missing, and damaged parts
- Tires and wheels

- Lug nut and pivot knuckle arm bolt torque specification.
- Warning placards, control markings, and working and safety manuals
- Outriggers, stabilizers, extendable axles, and other such structures
- Guardrail system
- Cleanliness of the working surfaces
- Items named by the manufacturer

5.4 Any aerial work platform that is found not to be in a safe working condition will be removed from service until repaired. The aerial work platforms controls will be locked out or an "OUT OF SERVICE" tag will be placed on the working controls and the key removed from the machine.

5.5 Inspections will be documented.

6.0 TRAINING

6.1 Only properly trained and approved personnel will be allowed to run the aerial platform.

6.2 The operator of an aerial platform will be trained on the model of aerial platform that will be used during work site operations or one having operating characteristics consistent with it. Under the direction of a qualified person, the trainee will run the aerial platform for a sufficient period of time to display knowledge of and competence in the operation of the aerial platform.

6.3 Before being approved to run the aerial platform, the operator will

- Be trained by a qualified person on the intended purpose and role of each control.
- Read and understand the manufacturer's operating instructions and the Company's safety rules, or be trained by a qualified person on the contents of the manufacturer's operating instructions and this policy.
- Understand by reading or having a qualified person explain decals, warnings, and instructions displayed on the aerial platform
- Run the aerial lift under the guidance of the qualified person.

6.4 A qualified person is a person who because of knowledge, experience, or training is familiar with the operation of the aerial device and the hazards involved.

6.5 Operators qualified to run an aerial platform will be issued an aerial platform permit on completion of the needed training. The trainer will issue the permit. The permit will be carried by the operator or be available at the main office. The permit will be good for as long the employee works for the company, but will be revoked immediately if the operator fails to use the aerial platform in pursuit of good safety practices.

7.0 SAFE OPERATING PRACTICES FOR AERIAL WORK PLATFORMS

7.1 Before the aerial platform is used and during use, the operator will check the area in which the aerial platform is to be used for possible hazards including, but not limited to, the following:

- Drop-offs and holes
- Bumps and floor obstacles
- Debris
- Overhead obstacles and high-voltage conductors
- Hazardous locations
- Inadequate surfaces and support to withstand the load force imposed by the aerial platform in each operating configuration
- Wind and weather
- Other possible unsafe conditions

7.2 The operator will ensure the following items before a platform is raised:

- The aerial platform is being used on a surface within the limits named by the manufacturer.
- The outriggers, stabilizers, expandable axles, or other stability-enhancing means are being used as needed by the manufacturer.
- The guardrail system is installed and accesses, gates, or openings are closed.
- The load and its distribution on the platform and any platform extension are in accordance with the manufacturer's rated capacity for the specific lift configuration.
- There is satisfactory clearance from overhead obstacles.
- The minimum safe approach distance to energized power lines and parts is being observed.
- Personnel in the platform are wearing fall protection devices (if applicable), required PPE, and other safety gear as needed by jobsite conditions.

7.3 Personnel will keep a firm footing on the platform floor while working there. The use of rails, planks, ladders, or any other devices for achieving added height or reach on the aerial platform is restricted.

7.4 Any occupant of an aerial work platform will be 100% tied off if manufacture required per type and model. This includes a full body harness, approved connecting device, and the use of the manufacturer's provided anchorage points within the work platform.

7.5 Only necessary personnel, their tools, and needed materials will be on or in the platform.

7.6 Rated load capacities will not be exceeded when loads are transferred to the platform at any height.

7.7 Personnel will not exit an elevated aerial work platform except where elevated work areas are inaccessible or hazardous to reach. When exiting to unguarded work areas, personnel will use fall protection with 100% tie off capabilities.

7.8 Before lowering the platform, the operator will verify the area surrounding the platform is clear of personnel and equipment.

7.9 The aerial platform will not be positioned against another object to steady the platform.

7.10 The aerial platform will not be used as a crane.

7.11 The boom and platform of the aerial platform will not be used as a jack to support any material. Only manufacturer approved attachments that allow hoisting of material will be allowed. Examples include drywall carriers or glazing packages.

7.12 The boom will not be lowered in an attempt to lift the machine base off the ground. If the machine base must be raised (for example, for changing a tire) a jack will always be used.

7.13 Aerial platforms will not be operated from a position on trucks, trailers, railway cars, floating vessels, scaffolds, or similar equipment unless the manufacturer approves the application in writing.

7.14 Altering or disabling of interlocks or other safety devices is restricted.

7.15 Care will be taken to prevent ropes, electric cord, and hoses from becoming entangled in the aerial platform. The use of break-away cable ties or quick hooks would be acceptable means of minimizing entanglement.

7.16 The platform rails, controls, and tie-off points will be kept clean of oil, mud, and grease.

7.17 When other moving equipment and vehicles are present in the work area, special precautions will be taken to warn others. Warnings including, but not limited to, flags, roped-off areas, flashing lights, and barricades will be used.

7.18 When traveling while the platform is raised, the operator will keep a clear view of the path of travel before beginning to drive and during travel. Before traveling the platform will be lowered to the lowest reasonable height. The operator will also keep a safe distance from obstacles, debris, drop-offs, holes, depressions, ramps, and other hazards to ensure safe travel.

7.19 Under travel conditions, the operator will limit speed according to conditions of ground surface, congestion, visibility, slope, location of personnel, and other causes that create hazards that could cause a crash or injury to personnel.

7.20 Stunt driving and horseplay are prohibited.

7.21 If the platform or elevating assembly becomes caught or snagged prevented normal motion by a nearby structure or other obstacles such that control reversal does not free the platform, personnel will be removed from the platform before attempts are made to free the platform using ground controls.

7.22 The operator will implement the means provided to protect against use by unauthorized persons.

7.23 The engine will be shut down while fuel tanks are being filled. Fueling will be done in a well-ventilated area free of flames, sparks, and other hazards that may cause fire or explosion.

8.0 REPORTING PROBLEMS OR MALFUNCTIONS

Operators will immediately report to their supervisor any problem or malfunctions of the aerial platform that become evident during operation. Any problems and malfunctions that affect the safety of operations will be repaired before use.

03.00 COMPRESSED GAS CYLINDERS

1.0 OBJECTIVE:

The purpose of this program is to prevent injury to Hausmann Construction, Inc. employees in cases of failing or the failure of compressed gas cylinders and to set up needs for handling, lifting and storing compressed gas cylinders safely.

2.0 PURPOSE

This program covers Hausmann Construction, Inc. employees and contractors who handle, transport and use compressed gas cylinders.

3.0 KEY RESPONSIBILITIES

3.1. Managers and Supervisors

- Will ensure that employees are aware of the proper handling, storage and use requirements for compressed gas cylinders.
- Will ensure that early training is conducted for new employees and that retraining is conducted when employee actions suggest that retraining is warranted.

3.2. Employees

- Will follow the policy and safe operating procedures in this manual and company provided training resources. This includes the handling, storage and use of compressed gas cylinders.

4.0 PROCEDURE

4.1. GENERAL

Cylinders will not be accepted, stored or used if evidence of denting, bulging, pitting; cuts, neck, hose; or valve damage is observed. If damage is observed:

- The cylinder must be taken out of service immediately by the observer and the jobsite foreman or project superintendent notified.
- The cylinder's owner will be notified to remove the cylinder from the property by the project foreman or project superintendent.
- If owned, the cylinder will be de-pressured and inspected as required by this program.

4.2. CYLINDER IDENTIFICATION

Gas identification will be stenciled or stamped on the cylinder or a label meeting the OSHA Global Harmonized System be used. No compressed gas cylinder will be accepted for use that does not legibly identify its content by name.

4.3. HANDLING

- Valve caps must be secured onto each cylinder before moving or storage.
- Secure the cylinder in a blanket rated for its capacity when being lifted by mechanical means.
- Slings, ropes or electromagnets are restricted to be used for lifting compressed gas cylinders
- The preferred means to move compressed gas cylinders is with a cart or carrier designed to secure the cylinder from unwanted movement. The last means of movement is by hand with two individuals assisting in the movement of the cylinder.
- Compressed gas cylinders must not be allowed to strike each other.
- When a cylinder cap cannot be removed by hand the cylinder will be tagged "Do Not Use" and returned to the named storage area for return to vendor.
- Employees are not permitted to carry the cylinder “over their shoulder” by their self to transport a cylinder.
- Cylinders shall always remain in an upright position during movement. It should not be moved or carried sideways or upside down.

4.4. STORING

Cylinders must be secured upright in a safe, dry, well-ventilated area that limits corrosion and decay.

- Cylinders must be secured by means that will prevent the cylinder from falling.
- When securing the cylinder, the restraints will not be attached to electrical conduit or process piping.
- Empty and non-empty cylinders will be stored separately.
- Stored cylinders will be capped.
- Oxygen cylinders must be stored a minimum of 20 feet from flammable gas cylinders or areas where there may be open flame or arcing. Alternatively, Cylinders may also be stored where the oxygen is separated from combustible gas cylinders by a 5-foot or higher wall with a fire resistance rating of 30 minutes.
- Storage areas for full and empty cylinders must be designated and labeled. Cylinders will be stored in assigned places away from elevators, stairs or gangways.

4.5. USE

Cylinders must be equipped with the correct regulators. Regulators and cylinder valves will be inspected for grease, oil, dirt and solvents. Only tools provided by the supplier will be used to open and close cylinder valves.

- Never force or adapt connections.
- Only regulators and gauges will be used within their designated ratings.
- Regulators must be equipped with a pressure check valve. Alternatively, where it is not provided in the regulator or cannot be verified a separate check valve will be fitted on the hose before and connecting to the regulator.
- The use of a pressure-reducing regulator is needed at the cylinder, unless the total system is designed for the maximum cylinder pressure.
- Valves must be closed when cylinders are not in use.
- Cylinders will not be used as rollers or supports.
- Cylinders will not be placed where they can come in contact with electrical circuits.
- Cylinders must be protected from sparks, slag or flame from welding, burning or cutting operations.
- Empty cylinders must be returned to named storage areas as soon as possible after use.
- A gas check valve must be installed on the hose at the torch handling area. This will protect the employee in the event of a back draft or mechanical failure.

4.6. INSPECTION OF COMPRESSED GAS CYLINDERS

Hausmann Construction, Inc. will decide if compressed gas cylinders under its control are in a safe condition to the extent possible by visual inspection. Visual and other inspections will be conducted as prescribed in the Hazardous Materials Regulations of the Department of Transportation (49 CFR parts 171-179 and 14 CFR part 103). Where those laws are not applicable, visual and other inspections will be conducted following the Compressed Gas Association Pamphlets C-6-1968 and C-8-1962. Some include, but are not limited to:

- Hoses and connections will be inspected regularly for damage. Hoses will be stored in cool areas and protected from damage.
- These owned cylinders will be visually inspected before charging, before each use and at least yearly.
- Functioning gauges that are in safe visual condition.

High-Pressure Cylinders are those cylinders marked for service pressures of 900 psi and greater:

- High-pressure cylinders will be taken out of service and submitted for requalification testing when any of the following conditions are identified by visual inspection
- Cuts, dings, gouges, dents bulges, pitting, neck damage or evidence of exposure to fire
- The cylinders will be inspected and retested according to the needs stated in 49 CFR 180.205 and .209
- Requalification of non-damaged cylinders will be conducted by the schedule in 49 CFR 180.209

Low-Pressure Cylinders are those cylinders marked for service pressures of less than 900 psi:

- Low-pressure cylinders fall into two categories, those needing requalification and those that do not need requalification
- Low-pressure cylinders that do not need requalification will be taken out of service and condemned when any of the following conditions are identified during inspection:
- The tare weight of the cylinder is less than 90% of the stamped on weight of the cylinder
- Viewed pitting, dents, cuts, bulging, gouges or evidence of exposure to fire
- Low-pressure cylinders subject to requalification will be taken out of service, inspected and retested when visual inspection identifies any of the following conditions; dents, bulges, pitting or neck damage
- Re-qualification of non-damaged cylinders will be conducted by the schedule in 49 CFR 180.209

4.7. LEAKING CYLINDERS

The foreman or project superintendent shall determine the remediation plan. Minor leaks may be addressed when it is determined to be safe to do so. This will be accomplished by moving Leaking cylinders quickly to an isolated, well-ventilated area, away from ignition sources.

Significant leaks of multiple cylinders or where an explosion is imminent or could possibly occur, especially flammable and oxygen containing cylinder leaking events require immediate evacuation of the area and our emergency action plan initiated.

Soapy water will be used to detect minor leaks. If the leak is at the junction of the cylinder valve and cylinder, do not try to repair it. Contact the supplier and ask for response instructions.

4.8. TRANSPORTATION

Cylinders must be transported in a vertical secured position using a cylinder basket or cart and must not be rolled. Regulators will be removed and cylinders capped before movement. Cylinders will not be dropped or permitted to strike violently and protective caps are not used to lift cylinders.

4.9. EMPTY CYLINDER MARKING

Cylinders will be marked empty. Never mix gases in a cylinder and only professionals will refill cylinders. Empty cylinders must be handled as carefully as when filled.

4.10. ENGINEERING CONTROLS

Engineering controls such as emergency shutoff switches, gas cabinets and flow restrictors will be used wherever possible to control hazards. Emergency eyewash facilities will be present where corrosive gases or materials are used.

04.00 CONFINED SPACE ENTRY

1.0 OBJECTIVE

The Hausmann Construction, Inc. confined space procedure has been set up to protect Hausmann Construction, Inc. employees from the dangers of entering and working in a confined space.

2.0 PURPOSE

The purpose of the confined space procedure is to set up guidelines for identifying confined spaces, and sets up needs for entry and working in confined spaces.

3.0 RESPONSIBILITY

3.1 Personnel involved with planning a project will decide if methods can be developed that will not need employees to enter a confined space. Where such engineering controls are possible and practical, they will be performed to prevent confined-space entry.

3.2 The Hausmann Construction, Inc. Safety Department personnel will be responsible for implementing each facet of any procedure developed to prevent confined space entry or to manage confined space safety, if necessary, and has full authority to make the decisions necessary for the success of the procedure. Safety Department personnel will perform an annual review of the confined space procedure and revise the procedure as necessary to protect employees engaging in entry operations from confined space hazards.

3.3 Hausmann Construction, Inc. has expressly appointed the site safety representative as the competent person who has the authority to halt any operations where there is potential danger of serious personal injury from confined space hazards or when the proper confined-space entry procedures are not being followed.

3.4 Property owners shall generally be considered to be the "host employer" as that term is defined under applicable OSHA regualtions because property owners are the employers that own or manage the property where the construction work is taking place. Where the host employer has information about permit space hazards on the site, it must share that information with the controlling contractor, who is then responsible for sharing it with the other employers on the site.

In no case will there be more than one host employer. If the owner of the property on which the construction activity occurs has contracted with another employer to manage the property and provided any relevant information it has about permit spaces on the property to the managing entity, the managing entity will be deemed to be the host employer. Absent such a contract and exchange of information, the owner of the property is the host employer.

3.5 The entry employer must train and authorize workers who work in a permit confined space. They also have to develop a plan to rescue entrants who cannot exit the space under their own power.

3.6 The following table illustrates duties of all employee types:

Category of Employer	Employer Responsibilities
All Employers	1. Identify all confined spaces in which their workers may work and determine whether any are permit spaces. If its workers are supposed to enter permit spaces, the employer is an "entry employer." 2. Employers who are not "entry employers" must make sure their workers stay out of any permit spaces present on the site, unless the workers are authorized for entry.
Entry Employers	1. Protect workers against permit space hazards by complying with the standard. 2. Inform controlling contractor of the program followed and hazards encountered in permit spaces.
Controlling Contractors	1. Share information it has about permit space hazards with entry employers and other employers whose activities may create hazards in the permit space. 2. Coordinate entry operations when there is more than one entry employer. 3. Coordinate operations when permit space entry occurs during other activities at the site that might create a hazard in the space.

Host Employers	Share information it has about permit space hazards with the controlling contractor.

4.0 DEFINITIONS

Attendant

A person designated by the supervisor in charge of entry to remain outside the confined space and to be in constant communication with the personnel working inside the confined space.

Authorized Entrant

A person who is approved or assigned by the supervisor in charge of the entry to perform a specific type of duty or duties or to be at a specific location at the job site.

Bonding

The joining of two or more items with an electrical conductor so that all ends joined has the same electrical charge or potential.

Controlling Contractor

The employer with overall responsibility for construction at the worksite. The controlling contractor is responsible for coordinating entry operations when there is more than one entry employer and when other activities on the site could foreseeably result in a hazard in the permit space. In addition, controlling contractors must provide any information they have about any permit space hazards and precautions previously used in the space.

Entry

The action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

Entry Employer

An employer who decides that an employee it directs will enter a permit space. There may be more than one entry employer if the employees of multiple employers must enter the space. Each entry employer is responsible for complying with all provisions in the Confined Spaces standard except those specifically imposed on the controlling contractor and host employer.

Entry Permit

The written or printed document that is provided by the employer to allow and control entry into a permit space and that contains the information specified in this program.

Engulfment

The surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing, or the substance suffocates the individual.

Supervisor

Supervisor or the designated representative (such as the foreman or superintendent) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this program.

Hazardous Atmosphere

An atmosphere that may expose employees to the risk of death, incapacitation, and impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more of the following causes:

- Flammable gas, vapor, or mist in excess of 10% of its lower flammable limit (LFL).
- Airborne combustible dust at a concentration that meets or exceeds its LFL.

  NOTE: *This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet or less.*

- Atmospheric oxygen concentration below 19.5% or above 23.5%.
- Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in Subpart G, Occupational health and Environmental Control, or in Subpart Z, Toxic and Hazardous Substances, of 29 CFR 1910 and that could result in employee exposure in excess of its dose or permissible exposure limit.

  NOTE: *An atmospheric concentration of any substance that is not capable of causing death, incapacitation, and impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this provision.*

- Any other atmospheric condition that is immediately dangerous to life or health.

  NOTE: *For air contaminants for which OSHA has not determined a dose or permissible exposure limit, other sources of information, such as Material Safety Data Sheets that comply with the Hazard Communication Standard, section 1910.1200, published information, and internal documents can provide guidance in establishing acceptable atmospheric conditions.*

Host Employer

The employer that owns or manages the property where construction operations are occurring. Where the host employer has information about permit space hazards on the site, it must share that information with the controlling contractor, who is then responsible for sharing it with the other employers on the site.

Hot Work

Any work involving burning, welding or similar fire-producing operations. Also, any work that produces a source of ignition such as grinding, drilling or heating.

Hot Work Permit

The employer's written authorization to perform operations (for example, riveting, welding, cutting, burning, and heating) capable of providing a source of ignition. Review company hot work program.

Immediately Dangerous to Life or Health (IDLH)

An atmosphere that poses an immediate threat of loss of life: May result in irreversible or immediate severe health effects; may result in eye damage/irritation; or other condition that could impair escape from a confined space.

Lower Explosive or Flammable Limit (LEL or LFL)

The minimum concentration of a combustible gas or vapor in air that will ignite if an ignition source is introduced.

Non-Permit Required Confined Space

A confined space that does not contain, nor has the potential to contain, any hazard capable of causing death or serious physical harm (with respect to atmospheric hazards).

Oxygen-Deficient Atmosphere

An atmosphere that contains an oxygen concentration of less than 19.5% by volume.

Oxygen-Enriched Atmosphere

An atmosphere that contains an oxygen concentration greater than 22% by volume.

PPE - Personal Protective Equipment

Any devices or clothing worn by the worker to protect against hazards in the environment. Examples are respirators, gloves, and chemical splash goggles.

PEL - Permissible Exposure Level

Concentration of a substance to which an individual may be exposed repeatedly without adverse effect.

Purging

The removal of gases or vapors from a confined space by the process of displacement.

Upper Explosive or Flammable Limit (UEL or UFL)

The maximum concentration of a combustible gas or vapor in air that will ignite if an ignition source is introduced.

5.0 IDENTIFICATION OF CONFINED SPACES

4.1 Each confined space and potential confined space will be evaluated and communicated with the controlling contractor. A confined space will be classified as a permit required confined space if it has one or more of the following characteristics:

- It has limited means of entry or exit
- It is unsuitable for continuous human occupancy
- It contains, or has a known potential to contain, a hazardous atmosphere or any recognized safety or health hazards
- It contains a material with the potential for engulfment of an individual, has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls, or has a floor that slopes downward and tapers to a smaller cross-section. Such spaces include excavations deeper than 5 feet and pits or diked areas that are 6 feet or more in height

5.2 Confined spaces will be considered to be immediately dangerous to life and health (IDLH), explosive, and oxygen deficient, until proven otherwise by testing.

5.3 Confined spaces will be considered permit required confined spaces (permit spaces) until proven otherwise by preentry testing. When a confined space is proved to be a nonpermit required confined space, the procedures in Section 19.0 will be followed.

5.4 Where practical, permit required confined spaces (both identified permit required confined space and confined spaces not yet tested) on-site will be posted with a sign reading

DANGER
PERMIT REQUIRED CONFINED SPACE
DO NOT ENTER

The sign will be posted at each point of entry.

5.5 As part of the early site training and daily and weekly safety meetings, the locations of identified confined spaces will be communicated to the employees.

6.0 CONFINED-SPACE ENTRANCE REQUIREMENTS

6.1 Entry into a confined space is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

6.2 Entrance into a permit required space will not be made until each element of the entry permit (see Section 6.0) are fulfilled and the permit required space is tested.

6.3 Only employees who are trained and knowledgeable of the requirements for entering a permit required space and who are listed on the entry permit will be allowed to enter a permit required confined space or be a confined space attendant for the confined space covered by the permit. Even if employees are trained to work in a confined space, they will not be allowed to enter a particular confined space unless they are listed as an approved employee on the entry permit.

7.0 ENTRY PERMIT

7.1 Each permit required confined space will be entered using an entry permit. The purpose of the entry permit is to preventing unauthorized employee entry and ensuring safe entry, work, and exit by authorized employees.

7.2 This permit, the Hausmann Construction, Inc. confined space entry permit (found in the forms and permits folder on the server), identifies conditions that must be satisfied before personnel enter a confined space.

7.3 Before employees enter a confined space, supervisory personnel will complete the entry permit.

7.4 The supervisor authorizing the entry will sign the permit before the entry begins, but not until each action designed for safe entry have been performed and conditions set forth in the permit are met.

7.5 The site safety representative will, as an auditing function, confirm the requirements of the entry permit are being met by co-signing the entry permit. The site safety representative has the authority to cancel the entry permit and order entrants out of the confined space when the conditions of the permit are not being met.

7.6 The signed entry permit, verifying that preentry preparations have been completed and the space is safe to enter, will be posted at the entrances to the confined space.

7.7 When work has been completed and entrants have exited the confined space, the individual authorizing the entry will cancel the permit.

7.8 When new conditions arise in a confined space, the existing permit will be canceled by the individual authorizing the permit or by the entry supervisor. The new conditions must be noted on the canceled permit and will be considered in revising and issuing a new entry permit.

7.9 Any problems faced during an entry operation will be noted on the permit, so proper changes may be made to the permit space or revisions may be made to the procedure.

7.10 The site safety representative for the duration of the project will maintain canceled entry permits on-site. Upon completion of the project, retention of the entry permits with be kept for a minimum of 1-year.

8.0 TRAINING

8.1 Employees who are authorized entry into a permit required confined space will receive early training in a language and vocabulary the worker can understand on the following:

- Atmospheric hazards (including recognition of exposure signs and symptoms and the results of exposures) that may be faced while entering, working in, or exiting the confined space.
- Communicating and recognizing hazards.
- The use and limits of gas testing devices.
- Engineering controls in use.
- Personal protective equipment (that is, retrieval lines, respirators, clothing) needed for safe entry, work, and exit.
- The proper use of external barriers needed to protect entrants from external hazards.
- Emergency procedures for evacuation and self-rescue.
- Communication procedures and needs.

8.2 Before first entry into the confined space, the site safety representative will conduct a pre-entry training session. The training will include :

- Review of the work to be conducted in the confined space
- Chemical and physical hazard recognition
- Protective equipment requirements
- Communication procedures and needs
- Emergency procedures
- Requirements of the entry permit

8.3 The pre-entry training will be repeated whenever there is a change in a permit space operation that presents a hazard about which an employee has not been previously trained or briefed.

8.4 The site safety representative will keep on-site certification of initial confined-space training and pre-entry training. A copy of the completion of training will also be sent to the Human Resources Department for the employee's personal file.

9.0 DUTIES OF AUTHORIZED CONFINED SPACE PERSONNEL

9.1 AUTHORIZED ENTRANTS

9.1.1 Employees who are authorized by the entry supervisor to enter a confined space will be provided with and use the personal protective and safety equipment needed for safe entry, work, and exit.

9.1.2 The entrant will keep communications with the attendant.

9.1.3 Authorized entrants will exit the confined space when

- The attendant or entry supervisor orders an evacuation.
- An automatic alarm is activated.
- A prohibited condition is detected.
- Recognizing the warning signs or symptoms of exposure to a hazardous atmosphere.
- Any failure of protective equipment has occurred.

10.2 ATTENDANT

10.2.1 The attendant will be stationed directly outside the point of entry always during entry, work operations, and exit unless relieved by another authorized attendant.

10.2.2 The attendant's primary duty will be attending to the confined-space entrants. The attendant will not perform other duties, because doing so may interfere with performing his or her primary duties. The attendant is to monitor single confined spaces only.

10.2.3 The attendant's primary responsibilities will include the following:

- Continuously keeping an accurate count of personnel in the confined space.
- Maintaining effective and continuous communication with the entrants during confined-space entry, work, and exit.
- Monitoring activities inside and outside the space to determine if it is safe for entrants to remain in the space.
- Ensuring that entry operations remain consistent with the entry permit and that acceptable entry conditions are maintained.
- Know existing and potential hazards, including information on the mode of exposure, and signs or symptoms, and consequences, and possible behavioral effects of exposure.
- Perform non-entry rescues when specified by the employer's rescue procedure.

- Remain outside the permit space during entry operations unless relieved by another authorized attendant.

10.2.4 The attendant will order entrants to evacuate the space immediately under the following conditions:

- A hazardous atmosphere is present in the confined space or a gas alarm has been activated.
- A general site evacuation alarm has been sounded.
- A ventilation system, engineering controls or gas detection system has failed.
- A situation outside the space develops that could endanger the entrants.
- On exiting from the confined space, an entrant has signs, symptoms or behavioral effects of exposure to a hazardous atmosphere.
- The attendant must leave the post.
- The attendant cannot effectively and safely perform required duties.

10.2.5 The attendant will not enter the confined space to try a rescue of entrants, but will use any rescue equipment provided and perform any other assigned rescue and emergency duties that do not need entry into the confined space.

10.2.6 The attendant will summon for rescue and other emergency services immediately on discovering that entrants need to be assisted from the confined space.

10.2.7 When unauthorized persons approach a confined space while permit actions are underway, the attendant will warn the person away from the space. If an unauthorized person enters the confined space, the attendant will tell the person to immediately exit the confined space and will tell the approved entrants, the entry supervisor, and the site safety representative of the unauthorized entry.

10.2.8 Perform no other duties that interfere with the attendant's primary duties.

11.3 ENTRY SUPERVISOR

11.3.1 The assigned site safety respresentative will name an entry supervisor who is a qualified person (such as the employer, foreman, or crew chief) responsible for overseeing entry operations.

11.3.2 The entry supervisor will be knowledgeable about the hazards that may be faced during entry, work, and exit, including information on the mode, signs or symptoms, and effects of the exposures.

11.3.3 An entry supervisor also may serve as an attendant or as an authorized entrant, as long as that person is trained and equipped as required by this policy for each role he or she fills. The duties of entry supervisor may be passed from one individual to another during the course of an entry operation.

11.3.4 The entry supervisor is responsible for the following:

- Informing the site safety respresentative and controlling contractor of confined space entries.
- Know space hazards including information on the mode of exposure, signs or symptoms and consequences.
- Verifying, by checking the proper entries have been made on the entry permit, that all tests mentioned by the entry permit have been conducted and that procedures and equipment named by the permit are in place before approving the entry permit and allowing entry to begin.
- Verifying that engineering controls are operational and the means for sending for help for rescue is available.
- Ensuring that entry operations remain consistent with the entry permit and that acceptable entry conditions are preserved.
- Removing unauthorized people who enter or try to enter the permit space during entry operations.
- Stopping the entry and canceling the permit.
- Telling the site safety respresentative when confined-space entry has been stopped.

12.0 ATMOSPHERIC TESTING

12.1 Before entry into a confined space, the following atmospheric tests will be performed:

- Oxygen concentration
- Combustible gas and vapors
- Site-specific concentration of airborne contaminants

12.2 Entry into a confined space will be restricted or stopped when atmospheric tests signal that:

- Oxygen deficiency or excess concentrations are below 19.5% or above 23.5%
- Any concentration of flammable gas, vapor or mist that is in excess of 10% of its lower explosive limit (LEL).
- Airborne combustible dust at a concentration equal to or greater than its lower explosive limit.
- Concentration of site-specific contaminants is approaching published exposure level limits or IDLH values.
- Atmospheric concentration of any substance that can cause death, incapacitation, impairment of ability to self- rescue, injury or acute illness.

12.3 Atmospheric testing will be performed regardless of the use of mechanical ventilation or respiratory protective devices.

12.4 When testing for atmospheric hazards, test first for oxygen, then for flammable gases and vapors, and then for site-specific contaminants. It is recognized that modern instrumentation monitors for a combination of atmospheric hazards, and therefore it may not be possible to monitor for oxygen first. Nevertheless, an oxygen reading is below 19.5% may signal that other atmospheric hazards are present.

12.5 Instruments used to conduct the atmospheric testing will be checked daily and calibrated if necessary under the manufacturers' instructions.

12.6 The atmosphere in the confined space will be continuously monitored in the areas where approved entrants are working. At least one worker in the confined space will be equipped and required to use a multiple gas monitor for oxygen and combustible and toxic gases. The point of entry and an up-stream section of the space will also be continuously monitored.

12.7 In evaluating atmospheric hazards, the competent person must consider:

1. The hazards present in the space before any workers enter; and
2. whether the work that will be performed can introduce toxic, flammable, or combustible air contaminants or lead to an excess or deficiency of oxygen. To perform the second part of this evaluation, the competent person must be familiar with the work to be done in the space and the potential for that work to introduce atmospheric hazards.

For example, a confined space that is safe when entered can become deadly if inert gas welding inside the space leads to the inert gas displacing oxygen in the worker's breathing zone.

12.8 The competent person must also evaluate chemicals for which OSHA sets no PEL. For example, if a product's label or the product manufacturer's safety data sheet warns that a product is harmful if inhaled and should not be used without adequate ventilation, the competent person must evaluate whether use of that product in a confined space requires the space to be classified as a permit space.

13.0 VENTILATION

13.1 A mechanical ventilation system (positive pressure forced air), where applicable, will be used to augment natural circulation when needed to control potentially hazardous atmospheres.

13.2 After a suitable ventilation period and while ventilators are operational, the space will be tested for atmospheric hazards.

13.3 If a confined space poses no actual or potential atmospheric hazards, then the space is not required to be ventilated.

13.4 Once in use, ventilators will continue to operate until the source of atmospheric contaminants has been removed by means other than forced ventilation.

13.5 The ventilator will be located in an area free of atmospheric hazards.

13.6 Apparatus for ventilating confined spaces will not block the point of access to the confined space.

13.7 When combustible gases must be moved through a ventilator, a ventilator approved for use in an explosive environment will be used.

13.8 When welding is performed in the confined space, a local exhaust system (negative pressure) will be used to capture the welding fumes at the source.

14.0 INERTING THE CONFINED SPACE

14.1 Inert gases or steam may be used to purge contaminants from a confined space.

14.2 When this technique is used, entry into the confined space will not be permitted until the space is adequately ventilated of the inert gases. When steam is used for purging, the space will be allowed to cool prior to entry.

15.0 OXYGEN and ACETYLENE EQUIPMENT

15.1 Compressed gas cylinders will not be taken into either permit required confined space or nonpermit–required spaces. Torches and hoses to be used in confined spaces will be inspected for leaks and defects. Torches and hoses will be taken into confined spaces only for the time needed to perform the desired work and removed immediately upon completion of the task. They will not remain in the confined space.

15.2 A Hot Work Permit will be filed with the site safety respresentative and the conditions of the permit will be satisfied before oxygen and acetylene activities are undertaken. In addition, continuous atmospheric monitoring is required when hot work is performed in a confined space.

16.0 CONTROL OF HAZARDOUS ENERGY

Specific hazardous energy control procedures will be developed and carried out as necessary for the isolated of physical hazards by; locking out, blocked, or otherwise brought to a zero energy state following Hausmann Construction hazardous energy control procedures.

17.0 RESCUE

17.1 Rescue procedures will be dictated by site conditions. At a facility, rescue operations are usually conducted by the facility's confined-space rescue team, while at other locations, rescue arrangements can be made with the local fire department. It will be determined early if the local fire department is equipped and trained for confined-space rescue.

17.2 The site safety respresentative will contact the outside response agency and brief its personnel on on-site conditions, locations of the confined spaces, and other applicable details of the job. At this time, it will be determined if the outside agency is capable of making an initial rescue.

17.3 When it has been determined that outside rescue personnel are not capable of starting a timely rescue, the Safety Manager will set up and train a confined space rescue team. At a minimum, the rescue team will consist of four people.

17.4 In making this determination, the site safety representative must consider response time. For example, if the space can quickly develop an IDLH atmosphere (if ventilation fails or for other reasons), the rescue team or outside agency would need to be standing by at the permit space. On the other hand, if the danger to entrants is restricted to mechanical hazards that would cause injuries (for example, broken bones and abrasions), a response time of 10 or 15 minutes might be adequate.

17.5 Each assigned member of the on-site rescue team will

- Receive the training required for authorized entrants.
- Be provided with and trained in the proper use of personal protective equipment, including rescue equipment.
- Complete a training drill using mannequins or personnel in a simulation of the confined space before issuance of the entry permit and at least yearly.
- Be familiar with the method that will be used to summon the team and the location of rescue equipment.

- Be trained in basic first aid and in cardiopulmonary resuscitation.
- At least one member of the rescue team holding current certification in first aid and in CPR will be available always during confined-space operations.

17.5 At least two members of the rescue team will be available during a confined-space entry.

17.6 The following rescue equipment will be readily available during confined-space operations:

- SCBA units
- Protective clothing
- Full body harness
- Retrieval lines
- Stokes basket or backboard
- First aid kit
- Retrieval system

17.7 If arrangements have been made for the use of the services of an outside rescue team, the team members will be told of the hazards they may face when called on to perform rescue operations.

17.8 Self Rescue Rules

17.8.1 It is preferable if the entrant(s) can be rescued without others entering the space to avoid having additional personnel exposed to the hazard that caused the injury or illness. Therefore, we will provide non-entry rescue using retrieval equipment unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant, such as when obstructions can snag the retrieval line or the line can become entangled with airlines or electric cords.

17.8.2 The attendant must be prepared to perform non-entry rescue assistance when required by the site-specific rescue procedures.

17.8.3 Each entrant must wear a chest or full body harness, with a retrieval line attached at the D-ring in the center of the back or another point which positions the entrant so that he or she is small enough to be pulled out of the space. The other end of the retrieval line must be attached to a mechanical device or a fixed point outside the permit space. A mechanical device must be available to retrieve someone from vertical type permit spaces more than five feet deep.

17.8.4 EXCEPTION: Wristlets or anklets may be used instead of a chest or full body harness only when the site specific safety plan demonstrates that use of a chest or full body harness is infeasible or would create a greater hazard and that the use of wristlets or anklets is the safest and most effective alternative.

17.8.5 When non-entry rescue is selected, the entry employer must also confirm, before entry begins, that emergency assistance would be available if the non-entry rescue fails. Emergency assistance would usually be provided by a local fire department or similar service.

18.0 SAFETY EQUIPMENT AND PPE

The site safety representative or appointed competent person will decide and list on the entry permit the necessary safety equipment and personal protective equipment (PPE) needed for the confined-space operations. The entry supervisor or attendant will make sure the safety equipment is properly used and kept.

19.0 CONFINED SPACE SAFETY RULES

Employees will follow the following safety rules for confined spaces:

- Entry will not be made into a confined space until the requirements of the entry permit have been satisfied.
- Smoking will not be permitted in or near the confined space.
- Ladders will be used in confined spaces deeper than 4 feet and will extend at least 3 feet above the landing surface. The ladder will be always secured.
- Where applicable, the entrance to the confined space will be protected by a standard guardrail. When entrance covers are removed, a standard guardrail system or other barrier will be erected to prevent pedestrians and vehicles from falling into the confined space, and to protect the entrants from the hazards posed by pedestrians and vehicles approaching too closely.
- Electrical tools, equipment, and lighting used in potentially hazardous environments will be intrinsically safe, explosion-proof, or approved for hazardous atmospheres, and be equipped with ground fault circuit interrupters (GFCIs).
- Hand tools will be kept clean and in proper working condition.
- Cylinders of compressed gas will not be taken into a confined space, except cylinders used for SCBA or exit.
- No material will be stored, stacked, or piled within 1.8 meters (6 feet) of the confined-space opening. Materials stored beyond this limit but near the opening must be stored in a manner that prevents them from falling into the opening. Equipment and materials will not be placed to block emergency equipment or the pathway for emergency vehicles.

- Flammable, combustible, or toxic materials stored aboveground will be found as far as is practicable (at least 30.5 meters [100 feet]) from the confined space opening and in a place from which it is impossible for spilled liquid to run toward the opening.
- Intrinsically safe hand lights will be carried always while personnel are in confined-space areas where artificial illumination is used.
- Confined spaces will be properly lit up or workers will use intrinsically safe miner's cap lamps.

20.0 SITE-SPECIFIC CONFINED SPACE PROCEDURES

20.1 It is recognized that various types of confined spaces can be faced on a jobsite. Each confined space poses a unique hazard. As part of the confined space procedure, Site-Specific confined-space procedures will be developed on a case-by-case basis.

These procedures will be developed as part of the Site-Specific Health and Safety Plan and changed as necessary by the health and safety representative.

20.2 The following format will be used for confined-space hazard analysis:

- Workplace.
- Potential hazards.
- Control of hazards.
- Work area surveillance.
- PPE needs.
- Entry requirements.
- Contractor communication.

21.0 SUBCONTRACTOR and CLIENT NOTIFICATION

21.1 Each subcontractor retained by Hausmann Construction will follow the procedures contained in this procedure. Each subcontractor will be notified of the contents of this procedure and locations of confined spaces that must be entered by their employees. All confined space entries will be coordinated by Hausmann Construction.

21.2 All requirements imposed by the client for confined space entry will be followed.

22.0 RECLASSIFICATION OF A PERMIT REQUIRED CONFINED SPACE

22.1 A space classified as a permit required confined space may be reclassified as a nonpermit or alternate entry confined space under the conditions described in the following subparagraphs.

22.1.1 If the permit space poses no actual or potential atmospheric hazards and other types of hazards within the space are eliminated without entry into

the space, the permit space may be reclassified as a nonpermit confined space so long as the other hazards do not reoccur.

22.1.2 If it is necessary to enter the permit space to eliminate hazards other than atmospheric hazards, such entry will be performed under the guidelines and requirements of sections 5.0 through 16.0 of this procedure. If testing and inspection during that entry demonstrate the hazards within the permit space have been removed, the permit space may be reclassified as a nonpermit confined space as long as these hazards do not reoccur.

22.2 Control of atmospheric hazards through forced-air ventilation does not make up elimination of the atmospheric hazards.

22.3 The site safety respresentative or supervisory personnel will document the basis for deciding that hazards in a permit space have been removed through a certification that contains the date, the location of the space, and the signature of the person making the determination. The certification will be made available to each employee entering the space or to that employee's approved representative.

22.4 If hazards arise within a nonpermit confined space that was formerly a permit space, workers in the space will exit immediately. The site safety respresentative will then reevaluate the space and decide if it must be reclassified as a permit space under other applicable rules of the confined space entry procedures.

22.5 Personnel entering a nonpermitted confined space will follow the atmospheric monitoring protocol as presented in section 9.0 and will comply with the training needs of section 7.0 and the applicable needs of sections 12.0, 13.0, and 16.0.

22.6 Employees will follow the following table as a guideline in determining confined space action requirements:

Precautions Required	**Permit-Required Space**	**Alternate Procedures Space**
Written Permit Space Program Meeting Requirements of Sections 1926.1204-1206	Yes	No
Worker Training Meeting Section 1926.1207	Yes	Yes
Duties of Authorized Attendants (Section 1926.1208), Attendants (Section 1926.1209), and Entry Supervisors (Section 1926.1210)	Yes	No

Rescue and Emergency Services (Section 1926.1211)	Yes	No
Information exchange between controlling contractor and entry employer(s) (Section 1926.1203(h))	Yes	Yes
Permit Space Warning Signs and Entry Restrictions (Sections 1926.1203(b) and (c))	Yes	Yes

Forms for both Permit required and Non-Permit Required Confined Space are located in the permits and inspection folder on the Server

05.00 DEMOLITION ACTIVITES

1.0 OBJECTIVE

It is an objective of Hausmann Construction, Inc. to provide a safe workplace for employees and subcontractors during demolition activities. Any demolition activities performed by Hausmann Construction, Inc. or its subcontractors will be performed in compliance with this procedure and applicable health and safety regulations.

2.0 PURPOSE

The purpose of this procedure is to give directions for demolition activities in accordance with 29 CFR 1926, Subpart T, and company policy. Hausmann Construction, Inc. will not allow employees not directly involved with the demolition to be present in areas where demolition activities are occurring. In addition, no employee is permitted in any area where that employee can be adversely affected by demolition operations.

3.0 DEMOLITION PLANNING AND PREPARATION

3.1 Before the work of a demolition project begins, the work will be planned in order to safeguard the health and safety of workers at the jobsite. The preparatory planning activities for a demolition involve the overall planning of the job, the methods to be used to bring the structure down, the equipment necessary to do the job, and the measures to be taken to achieve safety. Planning a demolition job is essential for doing the work safely and effectively. Therefore, a competent person will be identified who is experienced in each phase of the demolition work. The competent person will be respobsible for developing and coordinating the demolition plan.

3.2 Required permits will be obtained and necessary notifications, including "courtesy notifications" requested by agencies such as state environmental protection agencies, will be made before demolition activities begin. Clients and local regulatory agencies may require permits for demolition activities, and these will also be obtained before demolition activities begin.

3.3 An engineering survey will be completed before any demolition activities begin. This survey must be completed by a qualified person capable of recognizing any potential hazards associated with the structure both before and during demolition. The engineering survey must be written and kept on file at the project site. Engineering Survey form can be found on the office server located in the forms and permits folder. In difficult situations or situations with a high risk of hazards, a professional engineer is required to complete the engineering survey.

Key points of the engineering survey are described in the paragraphs below.

3.3.1 The framing floors and walls must be stable enough to withstand the loads that will be imposed on them during demolition activities. This is important if interior demolition will be required. Unplanned collapse of any part of the structure is of the utmost concern, because personnel would be exposed to immediate life-threatening danger.

3.3.2 Adjacent structures must be surveyed to determine if their occupants will be exposed to danger through demolition. In this step of the planning, an assessment must be made of the risk that may exist to the public or other contractors in the area. When other structures are attached or extremely close to the structure to be demolished, extra care and planning will be required.

3.3.3 In many cases, some form of damage has occurred to the structure that is to be demolished. In these cases, extra planning and precautions are often needed. For example, if a building has been damaged by flooding or fire, shoring and bracing of the structure will be required. The engineering survey must determine the need for such remedies shoring and bracing. The professional engineer must make sure they are in place before the demolition activities are begun.

3.3.4 Glass windows or other glass items must be identified in the survey.

3.4 Electric, gas, steam, water, sewer, and septic utilities and any other known utilities or services will be de-energized and physically disconnected before demolition begins. Lock out Tag Out procedures will be followed. The utility companies will be notified so that they have adequate time to respond.

If it is necessary to maintain any power, water, or other utilities during demolition, the lines will be temporarily relocated or protected, or both, as necessary. The location of overhead power sources will also be determined because they can prove especially hazardous during any machine demolition. Workers will be informed of the location of any existing or relocated utility service.

3.5 Vessels, tanks, lines, equipment, and any other potential accumulation point of a process material must be identified and air monitoring or testing, as appropriate, must be conducted. If conditions warrant, purging, ventilation, or abatement will be undertaken to remove the hazards. The hazards posed by the accumulation of a process material are toxic and combustible atmospheres, the accumulation of flammable substances, and any other recognizable hazard that may occur.

3.6 Any hazardous material inside of the structure to be demolished will be identified. Hazardous materials that may be found include asbestos and materials that are suspected of containing asbestos, polychlorinated biphenyls (PCBs), lead, or hazardous material left over from processing. These materials must be removed before demolition if the disposal of the demolition material

would be affected by the hazardous material. Additional protection of employees may be required if the hazardous materials will remain in place throughout the demolition activities. Any hazardous materials left in place must be noted on the engineering survey.

4.0 ACCESS AND EXITS

4.1 Appropriate entrances and exits must be in place before demolition begins if employees will be required to enter the structure. For multistory demolition, the requirements of 29 CFR 1926.850(k) must be put into action.

4.2 Routes of exit will be maintained during demolition activities and will be clearly marked. As necessary, self-illuminating exit signs and arrows pointing to exits will be used.

4.3 A sketch map showing exit points from within the structure will be posted. Sketch maps will be updated as demolition activities continue.

5.0 FIRE PREVENTION

Because of the high potential for fires at demolition sites, a fire prevention plan must be developed. Key points of fire prevention include the following:

- The local fire department will be notified of demolition activities.
- The client and fire department will be notified of any sprinkler system impairments. When installed & present, the fire suppression system will be that last system to be disconnected.
- A fire alarm system (e.g., an air horn, two-way radios) will be available at each project site, and employees will be briefed on its use.
- Readily accessible fire-fighting equipment and supplies (fire extinguishers, water supply, etc.) will be available in the work area.
- Each means of access to fire hydrants will be kept open, including a clear path from the hydrants to the structure. In the event a fire hydrant is unusable, the local fire department will be notified and the hydrant will be tagged out or covered.
- For hot work, such as torch-cutting or the use of tools that produce sparks, Hot Work log must be completed. A fire watch will be posted during the hot work and for at least 30 minutes after it is completed.
- A sketch map with the location of fire extinguishers in the area (and in the structure if work will be performed inside) will be posted. This map may be combined with the sketch map of the location of the fire extinguishers (see paragraph 4.3).
- Fuels and flammable and combustible materials will be stored away from demolition activities.

- Temporary containers such as fuel cans will not be permitted inside the structure unless they are stored in a flammable liquid cabinet.
- Temporary heaters must meet the requirements spelled out in 29 CFR 1926.154. As a rule, these heaters must be protected from damage within the structure.
- Propane cylinders will not be stored in any structure that is being demolished.
- Any temporary electrical wiring must be installed by a competent or certified electrician.

6.0 FIRST AID

6.1 Before the start of the job, local emergency services (ambulance, hospital, clinic) will be identified and notified of the work in progress and how to access the site.

6.2 Routes to the hospital and emergency telephone numbers (physician, hospital, ambulance, etc.) will be posted on the jobsite.

6.3 At least two persons on-site must have current first aid / CPR / AED training.

6.4 A first aid kit (a 16-unit kit at a minimum) must be available on the jobsite. Supplies must be in a weatherproof container with individual sealed packages for each type of item. Items must be replaced as they are expended. First aid kits will be inspected weekly and records of the inspections will be maintained with the kits.

6.5 A portable eyewash station and/or drench shower will be located in the immediate work area where persons could be exposed to hazardous chemicals.

7.0 SECURITY

The perimeter of the site or the building itself must be secured at the completion of each shift. A physical barrier will be constructed to hinder unauthorized visitors from entering the site. If a locking barrier not be possible, a security guard is required.

8.0 WALKWAYS

8.1 Where temporary walkway are required for the public to prevent exposure from hazards of the demolition activities, they will be placed at an adequate distance and be constructed of suitable materials. This includes providing handrails, fencing, lighting, shields, overhead protection, and any other control necessary for the safe passage of the public.

8.2 Stairs within the structure and outside it must be kept serviceable if employees will use them. This includes regular inspection throughout the demolition of the structure. Stairs deemed to be unusable will be clearly marked and

barricaded to prevent their usage. Lighting and appropriate handrails must be maintained throughout the usage of the stairs.

9.0 FLOOR AND WALL OPENINGS

9.1 Standard guardrail systems or covers will be used to protect workers from falling into floor openings and to prevent material falling through them. When guardrails are used to secure holes, they must be erected on unprotected sides or edges. When guardrails are used to secure holes that must be used for the passage of materials, not more than two sides can be protected by movable guardrail.

9.2 Covers will be capable of supporting, without failure, at least twice the weight that may be imposed on them by workers, equipment, and materials.

9.3 Covers will be secured when installed to prevent accidental displacement by wind, equipment, or workers.

9.4 Covers will be color coded or marked with the word “HOLE” or “COVER” to provide warning of the hazard.

9.5 Wall openings and hoist areas will be enclosed by a guardrail system or equivalent means to prevent workers from going through the opening or material from falling through it. When a guardrail system is used in hoisting areas, a chain, gate or removable guardrail section must be placed across access opening when hoisting operations are not taking place.

9.6 When protective systems for floor or wall openings or protective systems for hoist areas have been removed or opened, workers are required to use a personal fall arrest system.

10.0 MATERIAL DROPS

10.1 When debris is dropped through holes in the floor to a lower level without the use of chutes, the areas on the lower level where the debris lands will be enclosed with standard guardrail (or the equivalent) found at least 10 feet back from the opening. Signs warning of the hazard of falling materials will be posted on both levels. Workers will not be permitted to remove material from the lower level until dropping debris from above has stopped.

10.2 It is permissible for holes to be used for material drops to be cut into floors, but the requirements of this section must be met. The size of the material drop must not exceed 25 percent of the total floor area.

10.3 Where the material is dumped from mechanical equipment or wheelbarrows, a securely attached toeboard or bumper, not less than 4 inches thick and 6 inches high, will be provided at each opening.

11.0 DEBRIS CHUTES

11.1 At or near the discharge end of each debris chute, a gate will be installed to control debris. A worker will be assigned to control the operation of the gate and the backing and loading of trucks. When operations are not in progress, the area surrounding the discharge end of each chute will be securely closed off.

11.2 Chute openings into which debris is dumped will be protected by a guardrail system. Any space between the chute and the edge of openings in the floors through which it passes will be covered.

12.0 HOUSEKEEPING

12.1 The inside of structures involved with demolition must have free access ways to exits. Debris must not be allowed to pile up in work areas and will be removed from the structure into a staging area as soon as possible. As boards with nails are removed, the nails will be removed or bent immediately; workers will not let large quantities of such boards to be collected before they take this safety precaution. Sharp edges on metallic edges will be smoothed or bent as soon as possible. Trash must not be allowed to pile up inside the structure.

12.2 Torch lines and extension cords will be run the minimum distance necessary and will not cross over walkways. A rollback will be done periodically to remove unneeded lines and prevent entanglement.

12.3 Access ways must be maintained at the exterior of the structure to be demolished. Segregation piles will be placed far enough away as not to interfere with the demolition activities and will always be away from foot traffic areas. Whenever possible, segregation piles will be containerized. Material waiting to be shipped or disposed of must always be stacked in a manner to prevent its collapse. Material that cannot be stacked (such as most demolition debris) must not be piled higher than 4 feet.

12.4 Combustible material stacking should be minimized to pile sizes that can be adequately removed from the site in a diligent and timely manner.

12.5 Foot traffic and vehicle traffic will be kept to a minimum around stockpiles.

13.0 MECHANICAL DEMOLITION EQUIPMENT

13.1 Mechanical demolition equipment and its attachments will be visually inspected before each shift to verify that it is in safe operating condition.

13.2 Heavy equipment and service vehicles will be equipped with a multipurpose fire extinguisher.

13.3 Employees are required to use seat belt when operating heavy equipment or other vehicles.

13.4 Demolition machines (excavators, loaders, etc.) will be equipped with roll-over protective structures (ROPS) and falling-object protective structures (FOPS), including clear protective shields or window guards. Only machines with fully enclosed caps will be used. In addition, the machines will be equipped with audible reverse signal alarm.

13.5 Skid steer loaders such as Bobcats may not be used for direct mechanical demolition.

13.6 Where mechanical demolition equipment is used, the number of ground labor personnel will be kept to a minimum. No employee may work near machines that handle material or are engaged in shearing, bursting, or breaking concrete.

13.7 As necessary, ground labor will be

- Provided with brightly colored orange or green construction vests (reflectorized at night)
- Be instructed to stay out of equipment blind spots and to stay clear of material being sheared. (The blind spots for excavators, and cranes are to the operators' right.)

13.8 Personnel will not be elevated by booms, buckets, or other attachments.

13.9 The equipment operator will be responsible for the safe operation of his or her equipment and for knowing the location and number of ground personnel. The operator will be familiar with the blind spots on the equipment and will avoid making turns towards the blind spot.

13.10 Cranes and rigging must comply with Hausmann Construction policies as outlined in Hausmann Construction Safety Procedure (Cranes), of this manual and the regulations of the Occupational Safety and Health Administration (OSHA). The capacity of the crane must be determined before any pick is made, and the crane's capacity will not be exceeded in any configuration. A lift plan for critical and major lifts will be drafted and mathematically checked before such picks are made.

13.11 Internal combustion engine powered equipment shall be so located that the exhausts are well away from combustible materials. When the exhausts are piped to outside the building under construction, a clearance of at least 6 inches shall be maintained between such piping and combustible material.

14.0 GENERAL WORK PRACTICES

14.1 As demolition proceeds, continual inspections by a competent person will be made to decide if applicable safety precautions are being followed and if additional safety precautions are required. The competent person will identify existing and predictable hazards in the surroundings and working conditions that are unsanitary, hazardous, or dangerous to employees. The competent person

has authorization to take prompt corrective measures to eliminate hazardous conditions, including shutting down hazardous operations.

14.2 Personal protective equipment (PPE) will be selected based on the expected hazards. The minimum PPE for a demolition job is a hardhat, safety glasses, work boots, hi vis clothing(class 2 reflective vest for night operations) and work gloves suitable for the operation's hazards. Dismantling former process lines may require additional protection, such as eye/face protection and protective clothing.

14.3 Warning signs noting the danger or potential danger of any particular hazard must be posted, even within the work zone. Signs will be placed where they can be easily seen by any person in the area. It must be emphasized that signs will be posted warning of hazards, even those that are only potential or intermittent. A sign is not a control of a hazard and will not be treated as such.

14.4 Dust control is a requirement for demolition activities. If personnel are required to use water hoses, sufficient water pressure must be used to allow for personnel to be outside the fall area of the structure or the operating envelop of mechanical equipment.

14.5 On demolition projects, 100% fall protection is required when workers must work 6 feet or more above a lower level.

14.6 Impalement hazards in which an employee can fall onto will be eliminated or guarded. Where the impalement hazard cannot be removed or guarded employees will be protected from the hazard by a personal fall arrest system.

14.7 Employees are not allowed to walk on debris piles.

14.8 The work area will be adequately lit up. For construction work, at least 5 foot-candles of light are considered to be acceptable. While it is difficult to measure foot-candles on a construction site, the work area can be lit up with a combination of natural and artificial light in a manner that allows for normal visual conditions.

14.9 Scaffolding will be erected, moved, took apart, or altered only under the supervision and direction of a competent person qualified in scaffold erection, moving, taking apart, and change. The competent person will inspect the condition of the scaffold daily. See Hausmann Construction, Inc. Safety Procedure (Scaffolds), for more details on the safety needs for scaffolds.

14.10 Scissors lifts and man lifts will be equipped with guardrails, and operators must be familiar with the machines and competent in their use. The work surfaces must be stable, and under no circumstances will the equipment be used to raise or lower materials or equipment. The manufacturer's recommendations for maximum loads will not be exceeded, and the manufacturer's other recommendations will be heeded. These machines must be inspected daily following the manufacturer's recommendations. See Hausmann Construction

Safety Procedure (Aerial Work Platforms) for more information on the safety needs of aerial work platforms.

14.11 The number of ground personnel in demolition zones will be kept to a minimum, ideally zero. Adjoining areas will be emptied as well.

06.00 DRIVING AND MOTOR VEHICLE SAFETY

1.0 OBJECTIVE

The objective of this procedure is to prevent motor vehicles incidents involving vehicles driven by employees of Hausmann Construction, Inc. or vehicles operating on projects.

2.0 PURPOSE

The purpose of this procedure is to set up guidelines for preventing motor vehicle incidents and the consequent damage to property and injury to people. This program is written to be in compliance with local regulatory needs and provide directives to managers, supervisors, and employees about their responsibilities in the operations and management of Hausmann Construction, Inc. vehicle safety.

3.0 APPLICATION

This procedure covers motor vehicles that are owned, leased, or rented by Hausmann Construction, Inc. In addition, the procedure covers other motor vehicles used on Hausmann Construction, Inc. projects or for company business. Motor vehicles covered by this procedure include passenger cars, pickup trucks, vans, dump sports utility vehicles (SUVs), trucks, service trucks, all-terrain vehicles (ATVs), and ready-mix trucks.

4.0 OPERATING RULES

4.1 Operators of Hausmann Construction, Inc. or client on or off-road vehicles will have a valid driver's license and current medical card for the type or class of vehicle as required by the Department of Transportation regulation (DOT) that he or she is assigned to run. Only approved employees will drive a motor vehicle in the course and scope of work or run a company owned vehicle. Unlicensed personnel are not allowed to drive motor vehicles.

4.2 Drivers are responsible for making ***daily visual inspections*** of the company vehicle(s) they will be operating and applicable, inspections will be done under the manufacturer's recommendations found in the owner's manual. Unsafe vehicles will not be used until repairs are made and will be prevented from use by following our vehicle maintenance procedures in accordance to our Lock out Tag out (LOTO) program. To ensure drivers are prepared before leaving, the following will be completed:

- Perform a 360-degree walk around and report any damage to an immediate supervisor.
- Inspect the windshield for cracks; chips or pitting that could interfere with vision.
- Make sure dirt or snow is removed from all vehicle exterior lighting.
- Brush or clean off snow, ice or dirt from windows and mirror surfaces to

ensure complete vision is achieved.

- Check fuel level to be certain the destination can be reached with the remaining fuel level.
- Check to ensure the license plates, inspection tag and insurance paperwork are current.
- Ensure there is a first aid kit and inspected fire extinguisher in the vehicle.
- Ensure driver is rested and alert for driving.
- Employees are not to perform repairs or maintenance other than routine fluid additions.

4.3 Hausmann Construction, Inc. owned, leased vehicles will at a minimum be equipped with:

- 16-Unit first aid kit (hard mounted)
- Fire Extinguisher
- Vehicle registration (with active dates)
- Insurance card (with active dates)

4.4 Drivers will use the vehicle's restraints (for example, seat belts and shoulder harnesses) when the vehicle is in operation. It will be the responsibility of the driver to verify that each passenger is using a restraint device. Vehicles capable of more than 10 miles per hour will be equipped with seat belts for each person and passenger.

4.5 When drivers and passengers are mounting and dismounting vehicles, they will keep three points of contact always. Handholds and footsteps will be clean of periodically to prevent the buildup of snow, ice and mud.

4.6 Drivers are responsible for obeying posted speed limits and will give due regard to the weather, traffic, intersections, the width and character of the roadway, the motor vehicle being driven, and other existing conditions.

4.7 Drivers are responsible for keeping the vehicle's interior clean. Loose items will be secured to prevent them from rolling.

4.8 Vehicles will not be left unattended until the motor has been shut off, the key removed, and the transmission engaged in low, reverse, or park. If the vehicle is stopped on a grade, the wheels will be turned into the curb if applicable. On large vehicles, the wheels will be securely chocked.

4.9 It is not recommended that drivers to use cellular telephones, two way radios or other electronic devices while they are driving unless hand free operation is used.

4.10 Drivers and passengers will not consume alcoholic drinks in a vehicle. Driving under the influence of alcohol, illicit drugs, or prescription or over-the-counter medications that might hinder driving skills are restricted. Alcohol or illicit drugs are not allowed to be in a company, client or leased vehicle.

4.11 Smoking tobacco products in company owned, rented or leased vehicles is prohibited.

4.12 Immediately report any citation, warning, traffic violation, collision, vehicle damage or near miss associated with company or client vehicle operation or while driving on company duties will be reported to the Hausmann Construction, Inc. Safety Department Representative and the project manager and superintendent. Employees are responsible for tickets or fines issued as a result of their operation of a vehicle covered by this policy.

4.13 Immediately report any restriction or change to driving privileges to a supervisor.

4.14 Vehicles may not be not be modified without the endorsement of the manufacturer.

4.15 Signs, stickers or labels are to be fitted in such a manner that they do not obstruct the driver's vision or impede the driver's use of controls.

4.16 Drivers will practice defensive driving and remain aware of the conditions and hazards of the road, continually assess and remain prepared for any challenge that may approach them. When speaking with a passenger remain focused on the road. Always keep both hands on the wheel.

5.0 TRANSPORTING PERSONNEL

5.1 If employees are required to travel in a worker transportation vehicle, Hausmann Construction, Inc. must take reasonable measures to evaluate road, weather and traffic conditions so employees can transit safely.

5.2 The number of passengers in passenger vehicles will not exceed the number of seats.

5.3 Trucks used to transport personnel will be equipped with a securely anchored seating arrangement, rear tailgate, and guardrails. Steps or a ladder for mounting and dismounting will be provided.

5.4 Personnel are not allowed to ride with arms or legs outside a vehicle body. Personnel must be sitting in passenger seats or in an anchored seating arrangement.

Personnel will not be transported while they are in a standing position on the body of the vehicle, while they are seated or standing on running boards, or while they are seated on side fenders, cabs, cab shields, or behind or on top of a load.

5.5 Vehicles transporting employees will not be moved until the driver has learned that passengers are seated, the guardrails and rear tailgate are in place and the doors are closed.

5.6 Dump truck bodies will not be used to carry employees.

5.7 Mounting and dismounting any vehicle in motion is restricted.

5.8 Materials, goods, tools or equipment carried in a portion or compartment of a vehicle must be found and secured to prevent injury to the operator or employees.

5.9 Any enclosed portion or compartment of a vehicle in which employees are transported must have:

- Effective ventilation, independent of doors, providing clean air
- Satisfactory lighting and means for heating and cooling
- An effective means of communication between the operator and passengers
- More than one means of exit

6.0 DUMP TRUCKS

6.1 Dump trucks will be equipped with fire extinguishers and backup alarms or proximity sensors.

6.2 When practical and feasible, consideration will be given to the use of straight trucks or straight trucks and pup trailers over the use of semi-trailer dumps.

6.3 Semi-trailer dumps will be equipped with a slope indicator or other suitable protective system that will prevent the raising of the dump trailer when the trailer is not level. Telescopic trailers will be unloaded on level and compacted ground.

6.4 Dump trucks will be equipped with a holding device to prevent accidental lowering of the body while maintenance or inspection is being performed. No person will place any body part between the raised dump bodies and frame unless the holding device is engaged.

6.5 Employees will stay clear of the tailgate swing and will not place body parts between the open tail gate and dump body. Debris lodged in the tailgate will be cleared with long-handled tools.

6.6 Dump trucks will be equipped with tarpaulins and loads will be covered before travel.

7.0 VEHICLE BACKING

7.1 Vehicles with an obstructed view to the rear will be equipped with a backup alarm or proximity sensor.

7.2 Before backing up or maneuvering a vehicle in a congested work area, the driver will walk behind the vehicle to view the area for possible hazards such as debris on the ground, open holes, obstacles, and people.

7.3 A trained signalperson will be used when vehicles are backed up in the following situations:

- The work area is congested.
- The terrain is dangerous.
- Vehicles are backed up more than 100 feet.
- Two or more vehicles are backing up in the same area.

7.4 The following ground rules apply for backing up vehicles:

- Shift the vehicle into park (automatic) or set the parking brake (manual), get out and walk around the vehicle to make sure the way is clear. If the path of travel is clear, back up immediately.
- Sound the horn at least twice to warn anyone in the area that you are going to move.
- Use mirrors to check for personnel at the sides or rear of the vehicle.
- Back up with the clearance on your side.
- Stop immediately if anyone disappears from view behind you. Do not move until you see the person again. If necessary, get out and check where the person is.
- When other equipment is backing up in the same area, remain in your vehicle if possible.

8.0 TOWING

8.1 Towing devices used in any combination of vehicles will be structurally satisfactory for the weight drawn and will be properly mounted.

8.2 When towed on public a highway, trailers and tag-along units will be equipped with working signal lights and brake lights.

8.3 A locking device or double safety system will be provided on every fifth wheel mechanism and tow bar arrangement to prevent the accidental separation of towed and towing vehicles.

8.4 Trailers will be coupled with safety chains or cables to the towing vehicle. Such chains prevent separating the vehicles in case of tow bar failure.

8.5 Trailers equipped with power brakes will be equipped with a breakaway device that effectively locks up the brakes if the trailer separates from the towing vehicle.

8.6 When towed units such as generators, pumps, light plants, and compressors are released from the towing vehicle, the stabilizer leg (s) will be lowered or the wheels of the towed unit will be chocked.

8.7 When trailers such as box trailers are not coupled to a tractor, they will be adequately supported on solid ground by their support legs and fixed jacks.

8.8 The brakes of highway trucks will be set and wheel chocks placed under the rear wheels to prevent the trucks from rolling while they are boarded by powered industrial trucks.

8.9 Equipment such as mobile construction equipment will not be loaded onto a trailer that is not coupled to the towing vehicle tractor unless the trailer has been designed to work without being coupled to the towing vehicle (for example, gooseneck lowboy).

8.10 Employees will not be permitted to get between a towed and towing vehicle except when hooking or unhooking the vehicles. When hooking or unhooking the vehicles, employees must watch where they place their hands to avoid being caught between the tow bar and the hitch.

9.0 LOADING VEHICLES

9.1 No vehicle or combination of vehicles hauling unusually heavy loads or equipment will be moved until the driver has been provided with the required permits and the correct weights of the vehicles and load.

9.2 The rules for the mobilization and demobilization of heavy equipment will be followed; review Hausmann Construction, Inc. Safety Procedure (Heavy Equipment).

9.3 The loads on vehicles will be spread, chocked, tied down, or secured. Loads will be covered when there is the hazard of dirt, debris, or material falling or flying out of the load.

9.4 Loads will not obscure the driver's view or the vehicle's lights or reflectors.

9.5 Vehicles carrying loads that project beyond the sides or rear of the vehicle will carry a red flag of at least 12 square inches (3 inches x 4 inches) at or near the end of the projection. At night or when visibility is restricted, a warning light will be used instead of the red flag.

10.0 ALL TERRAIN VEHICLES

10.1 ATV operators will have a valid state driver's license and will have completed an ATV training course before operating of the vehicle. The training program for an ATV operator must include the following:

- The operator's pre-trip inspection
- Use of personal protective apparel
- Operating skills according to the ATV manufacturer's instructions
- Basic mechanical needs

- Loading and unloading the vehicle, if this is a job need

10.2 Only ATVs with four or more wheels will be used.

10.3 While running an ATV, drivers will wear clothing suitable for the environmental conditions and when necessary to protect against the hazards presented at the worksite; suitable gloves, an approved motorcycle helmet with a full-face shield or goggles, boots, long pants, and a long sleeve shirt or jacket

10.4 ATVs are to be used off-road only (do not drive them on paved roads). When ATVs must be used on a haul or access road used by other vehicles and heavy equipment, the ATV operator will wear a brightly colored traffic safety vest and travel with the lights on; the ATV will be equipped with florescent pendant visible to the drivers of other vehicles

10.5 Do exceed the manufacturer set limits for operation of the ATV on sloping ground or surfaces

10.6 Passengers are restricted from riding on ATVs unless the ATV is specifically designed with an added seat and restraint device to hold passengers

10.7 ATVs will be equipped with a warning signal device (a horn)

11.0 MAINTENANCE AND REPAIRS

11.1 The vehicle's engine must be turned off during refueling.

11.2 Containers used for flammable liquids will be removed from a vehicle (pickup truck with bed liners) before the container is filled.

11.3 During the charging or jump-starting of a battery, cell caps will be removed and the opening covered with a damp rag. The jumper cables will be connected in the following sequence:

- The positive cable is attached to the positive terminal of the dead battery
- The other clamp of the positive cable is attached to the positive terminal of the good battery
- The negative cable is attached to the negative terminal of the dead battery
- The other clamp of the negative cable is attached to the engine block or the frame of the vehicle with the good battery
- The cables must be attached firmly to prevent sparks. To prevent explosions, flashlights will be used to check electrolyte levels. Employees charging or jump-starting a battery will wear eye and face protection and will stand clear of the battery

11.4 To check the pressure of tires or to inflate them, chuck equipped with a gauge or pressure regulator preset to the needed pressure will be used.

11.5 A safety tire rack, cage, or equivalent protection will be provided and used when tires installed on split rims or rims equipped with locking rings or similar devices are inflated, mounted, or dismounted.

12.0 VEHICLE REQUIREMENTS

- Vehicles will be fit for the purpose, and will be kept in safe working order
- No vehicle less than 2200 lbs. are to be used on public roads.
- Tires, including spares if full-size, are to be of same type, profile and tread pattern, except when the vehicle or tire Manufacturer recommends a different type for certain axles.
- Tire type and pattern is to be recommended by the vehicle or tire manufacturer for use on the vehicle in the area of operation.
- Vehicles are to be fitted with a spare wheel and changing equipment to safely change a wheel, or a suitable alternative.
- Seats are to be fitted with headrests.
- Light duty vehicles (including buses) are to be equipped with adjustable left, right and central rearview mirrors.
- Loads will be secure and will not exceed the manufacturer's specifications and legal limits for the vehicle.
- Vehicles are to be equipped with a multipurpose fire extinguisher with a capacity of at least 2 lb. The fire extinguisher will be securely mounted on a bracket and found so it is easily accessible in an emergency without becoming a hazard in case of an incident.
- Light vehicles will be equipped with a securely stowed first aid kit
- Drivers of light vehicles will carry a high visibility vest for use in case of emergency stops.
- Rollover protection will be installed in any vehicle to address high risk environments. The rollover protection engineered will conform to recognized regulatory standard and industry preferred practices.
- Light equipment vehicles will be outfitted with two red high-intensity lights found as high, as far apart, and as far back as practical, wired to the headlight switch, but also with an override switch, if allowed by local laws.

13.0 TRAFFIC CONTROL

Hausmann Construction, Inc. will develop, in writing, and carry out a traffic protection plan for its employees at a worksite if any of them may be exposed to a hazard from vehicular or pedestrian traffic that may endanger the safety of any worker. It will include control measures:

- Means of traffic control will be provided whenever the unregulated movement of vehicular traffic makes up a hazard to employees.
- Traffic control will include barricades and cones as the primary control and, where needed, signs, flaggers or other techniques and devices made necessary by the prevailing circumstances.

- Operations or equipment, encroaching on the traveled way, will be protected by barricades and cones as the primary control and, where needed other effective devices.
- Hausmann Construction, Inc. must train employees in the traffic control safe work procedures.
- Hausmann Construction, Inc. will ensure that before a worker is appointed as a flag person, the worker is trained in the safe work procedures for the safe control of traffic operations and wears the proper high visibility outer clothing and equipment.
- If a worker at a project on a highway may be endangered by vehicular traffic unrelated to the project, the project will make use of as many measures as necessary to adequately protect the worker.
- A worker who is needed to set up or remove traffic control measures on a roadway or a shoulder of a roadway will be a competent worker, will be equipped with the proper high visibility apparel, will not perform any other work while setting up or removing the measures and will be given satisfactory written and oral instructions in a language that he or she understands, for setting up or removing the measures.

14.0 ACCOUNTIBLITY

Driving a company vehicle or equipment is a privilege and responsibility, not a right. **To ensure company policies, state and federal law are followed,** violation of these laws and rules may result in removal of driving privileges or other discipline.

07.00 ELECTRICAL SAFETY

1.0 PURPOSE

The purpose of the Electrical Safety program is to set forth procedures for the safe use of electrical equipment, tools, and appliances on Hausmann Construction, Inc. projects.

2.0 SCOPE

This program applies to all Hausmann Construction, Inc. employees, temporary employees, and subcontractors. This document covers Hausmann Construction, Inc. employees and subcontractors and will be used on all projects, unless a more restrictive program is required by contract.

3.0 DEFINITIONS

- Affected Personnel - Personnel who normally use and work with electrical equipment, tools, and appliances, but who do not make repairs or perform lock out and tag out procedures

- Appliances - Electrical devices not normally associated with commercial or industrial equipment such as air-conditioners, computers, printers, copiers, coffeepots, microwave ovens, toasters, etc.

- Class l Locations - Are those in which flammable gases or vapors may present in the air in quantities enough to produce explosive or ignitable mixtures

- Class 1 Division 1 - Is a location (a) in which hazardous concentrations of flammable gases or vapors may exist under normal working conditions; or (b) in which hazardous concentrations of such gases or vapors may exist often because of repairs or maintenance operations or because of leakage; or (c) in which a breakdown or faulty operation or equipment or processes might release hazardous concentrations of flammable gases or vapors, and might also cause simultaneous failure of electrical equipment

- Class 1 Division 2 - Is a location (a) in which volatile flammable liquids or flammable gases are handled, processed, or used, but in which the hazardous liquid, vapors, or gases will normally be confined within closed containers or closed systems from which they can escape only in case of accidental rupture or breakdown of such containers or systems, or in of abnormal operation of equipment or (b) in which hazardous concentrations of gases or vapors are normally prevented by positive mechanical ventilation, which might become hazardous through failure or abnormal operations of the ventilating equipment; or (c) that is next to a Class 1, Division 1 location, and to which hazardous concentrations of gases or vapors might occasionally be communicated unless such communication is prevented by acceptable positive-pressure ventilation

from a source of clean air, and effective safeguards against ventilation failure are provided

- Class II locations - Class II locations are those that are hazardous because of the presence of combustible dust. Class II locations include:

  - Class II, Division 1 - A Class II, Division 1 location is a location (a) in which combustible dust is or may be in suspension in the air under normal operating conditions, in quantities enough to produce explosive or ignitable mixtures; or (b) where mechanical failure or abnormal operation of machinery or equipment might cause such explosive or ignitable mixtures to be produced, and might also provide a source of ignition through simultaneous failure of electric equipment, operation of protection devices, or from other causes, or (c) in which combustible dusts of an electrically conductive nature may be present.

    NOTE: This classification may include areas of, areas where metal dusts and powders are produced or processed, and other similar locations that contain dust producing machinery and equipment (except where the equipment is dust-tight or vented to the outside).

  - These areas would have combustible dust in the air, under normal operating conditions, in quantities sufficient to produce explosive or ignitable mixtures

  - Combustible dusts that are electrically nonconductive include dusts produced in the handling and processing produce combustible dusts when processed or handled

  - Dusts containing magnesium or aluminum are hazardous and the use of extreme caution is necessary to avoid ignition and explosion

  - Class II, Division 2 - A Class II, Division 2 location is a location in which: (a) combustible dust will not normally be in suspension in the air in quantities enough to produce explosive or ignitable mixtures, and dust buildups are normally not enough to interfere with the normal operation of electrical equipment or other apparatus; or (b) dust may be in suspension in the air because of occasional failing of handling or processing equipment, and dust buildups resulting there from may be ignitable by abnormal operation or failure of electrical equipment or other apparatus.

    NOTE: This classification includes locations where dangerous concentrations of suspended dust would not be likely but where dust accumulations might form on or around electric equipment. These areas may contain equipment from which notable quantities of dust would escape under abnormal working conditions or be next to a Class II Division 1 location, as described above, into which an explosive or ignitable

concentration of dust may be put into suspension under abnormal operating conditions.

- Circuit Breaker - A device designed to open and close a circuit by non-automatic means and to open the circuit automatically on a predetermined over current without injury to itself when properly applied within its rating.

- Disconnecting Means - A device, or group of devices, or other means by which the conductors of a circuit can be disconnected from their source of supply.

- Disconnecting Switch - A mechanical switching device used for isolating a circuit or equipment from a source of power.

- Double Insulated Tool - Tools designed of nonconductive materials that do not require a grounded, three wire plug.

- Ground - Connected to earth or some conducting body that serves in place of the earth.

- Grounded Conductor - A conductor used to connect equipment or the grounded circuit of a wiring system to a grounding electrode or electrodes.

- Ground Fault Circuit Interrupter (GFCI) - A device whose function is to interrupt the electric circuit to the load when a fault current to ground exceeds some predetermined value that is less than that required to operate the over current protective device of the supply circuit. ***Hausmann Construction, Inc. will use GFCIs in lieu of an assured grounding program.***

- Insulated - A conductor encased within material of composition and thickness that is recognized as electrical insulation,

- Premises Wiring - That interior and exterior wiring, including power, lighting, control, and signal circuit wiring together with all of its associated hardware, fittings, and wiring devices, both permanently and temporarily installed, which extends from the load end of the service drop, or load end of the service lateral conductors to the outlet (s). Such wiring does not include wiring internal to appliances, fixtures, motors, controllers, motor control centers, and similar equipment.

- Qualified Person - One that has been trained in the repair, construction and operation of electrical equipment and the hazards involved.

- Strain Relief - A mechanical device that prevents force from being transmitted to the connections or terminals of a cable or extension cord.

4.0 KEY RESPONSIBILITIES

4.1 MANAGERS AND SUPERVISORS

The Safety Department will develop electrical safety programs and procedures in accordance with OSHA requirements or as indicated by events and circumstances.

Managers and supervisors are responsible for ensuring that only qualified employees and or qualified contractors perform electrical repairs or installations.

Managers are also responsible for ensuring all applicable electrical safety programs are carried out and upheld at their locations.

Employees are responsible to use electrical equipment, tools, and appliances according to this program, for attending needed training sessions when directed to do so and to report unsafe conditions to their supervisor immediately.

Only qualified employees may work on electric circuit parts or equipment that has not been de-energized. Such employees will be made familiar with the use of special precautionary techniques, PPE, insulating and shielding materials and insulated tools.

5.0 SAFE WORK PRACTICES

5.1 INSPECTIONS

Electrical equipment, tools, and appliances must be visually inspected before each use.

The use of a hard fixed GFCI or a portable GFCI adaptor will be used with all portable hand tools, electric extension cords, drop lights and all 110 volt equipment.

Operable inspections and verification of the GFCI function shall be completed before use of energized equipment.

Faulty equipment, tools, or appliances will be removed from service immediately and tagged "Out of Service", dated and signed by the employee applying the tag.

5.2 REPAIRS

Only Qualified Personnel, who have been approved by the project superintendent or manager, may make repairs to supply cords on electrical tools and to extension cords.

Only state certified electricians, or the equivalent will be allowed to make repairs to electrical equipment and wiring.

The supervisor obtaining the services of a certified electrician is responsible to verify the electrician's credentials.

Employees will not enter spaces containing exposed energized parts unless a certified and qualified employee has permission and proper illumination exists to enable employees to work safely. Employees shall stay clear of all exposed electrical parts and de-energize before any work is performed near or on said equipment.

Employees will not wear conductive apparel such as rings, watches, jewelry, etc. (Unless they are made nonconductive by covering, wrapping, or other insulating means) while working on or near open energized equipment this includes batteries on trucks, forklifts, phone backup systems or other such equipment.

If employees are subject to handle long conductor objects (ducts or pipes), steps for safe work practices will be employed to ensure the safety of workers.

5.3 EXTENSION CORDS

Use only three-wire, grounded, extension cords and cables that conform to a hard service rating of 12 amperes or higher, and grounding of the tools or equipment being supplied.

Only commercial or industrial rated-grounded extension cords may be used in shops and outdoors.

Cords for use other than indoor appliances must have a rating of at least 14 amps.

Cords must have suitable strain relief provisions at both the plug receptacle ends.

Work lamps (drop light) used to power electrical tools must have a 3 wire, grounded outlet, unless powering insulated tools.

Adaptors that allow three wire, grounded prongs, connected to two wire no grounded outlets are restricted.

Cords must have a service rating for hard or extra-hard service and have S, AJ, ST, SO, SJO, SJT, STO, or SJTO printed on the cord.

Cords may not be run through doorways, under mats or carpets, across walkways or aisles, hidden behind walls, ceilings or floors, or run through holes in walls, or anywhere where they can become a tripping hazard.

High current equipment or appliances will be plugged directly into a wall outlet whenever possible.

ALL EXTENSION CORDS WILL BE PLUGGED INTO ONE OF THE FOLLOWING:

- A GFCI outlet
- A GFCI built into the cord
- A GFCI adaptor used between the wall outlet and cord plug

Extension cords and or electrical cords will be inspected daily or before each use, for breaks, plug condition and ground lugs, possible internal breaks, and any other damage. If damage is found, the extension cord or electrical cord will be remove from service and repaired or replaced.

Extension cords will not be used on compressor skids to operate heat tapes or any other type of equipment on a temporary basis. Heat tapes or other equipment will be hard wired following applicable electrical codes.

5.4 OUTLETS

Outlets connected to circuits with different voltages must use a design such that the attachment plugs on the circuits are not interchangeable.

5.5 MULTIPLE OUTLET BOXES

Multiple outlet boxes must be plugged into a wall receptacle.

The amperage rating of the wall receptacle shall not be exceeded by multiple device connections. Employees are responsible to verify the amperage draw before using multiple connections.

Multiple outlet boxes must not be used to provide power to microwave ovens, toasters, space heaters, hot plates, coffeepots, or other high-current loads.

5.6 DOUBLE INSULATED TOOLS

Double insulated tools must have the factory label intact showing the tool has been approved to be used without a three-wire grounded supply cord connection.

Double insulated tools must not be altered in any way, which would cancel the factory rating.

5.6 SWITCHES, CIRCUIT BREAKERS, AND DISCONNECTS

All electrical equipment and tools must have an on and off switch and may not be turned on or off by plugging or unplugging the supply cord at the power outlet.

Circuit breaker panel boxes and disconnects must be labeled with the voltage rating.

Each breaker within a breaker panel must be labeled for the service it provides.

Disconnect switches providing power for individual equipment must be labeled accordingly.

All panels doors must remain closed when not being serviced. No openings in knockouts are permitted.

5.7 LADDERS

Only approved, nonconductive ladders, may be used when working near or with electrical equipment, which includes changing light bulbs.

Ladders must be either constructed of wood, fiberglass, or have nonconductive side rails.

Wood ladders will not be painted, which can hide defects, except with clear lacquer. Please refer to the ladder section of this safety manual for complete details.

When using ladders they will be free from any moisture, oils, and greases.

5.8 ENERGIZED AND OVERHEAD HIGH-VOLTAGE POWER LINES & EQUIPMENT

A minimum clearance of 10 feet from high-voltage lines must be maintained when operating vehicular and mechanical equipment such as forklifts, and other similar equipment. See section 28 Cranes for working around power line clearances

Additional distance will be required dependent on the amount of voltage the line supplies. Refer to the table below {A1}:

{TABLE A1} Minimum Clearance Distances from Overhead Power Lines

Voltage (nominal, kV, alternating current)	Minimum Clearance Distance (feet)
Up to 50	10
Over 50 to 200	15
Over 200 – 350	20
Over 350 – 500	25
Over 500 – 750	35
Over 750 – 1,000	45
Over 1,000	As established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution.

Note: *The value that follows "to" is up to and includes that value. For example, over 50 to 200 means up to and including 200kV.*

When possible, power lines will be de-energized and grounded or other protective measures will be provided before work is started.

Minimum approach distance to energized high-power voltages lines for unqualified employees is 10 feet or as described in the table above {A1}.

Minimum approach distance for qualified employees will be followed per 29 CFR 1910.333(c)(3)(i) Qualified - Table S5 Selection and Use of Work Practices - Approach Distances for Qualified Employees - Alternating Current).

5.9 CONFINED OR ENCLOSED WORK SPACES

When an employee works in a confined or enclosed space that contains exposed energized parts, the employee will isolate the energy source and turn off the source and lock and tag out the energy source (Only qualified electricians can work on an exposed energy source).

Protective shields, protective barriers or insulating materials as necessary will be provided.

5.10 ENCLOSURES, BREAKER PANELS, AND DISTRIBUTION ROOMS

A clear working space must be kept in the front, back and on each side of all electrical enclosures and around electrical equipment for a safe operation and to allow access for maintenance and change.

A minimum two-foot working floor space in front of panels and enclosures will be painted yellow in permanent installations or manufacturing facilities. This is designed to indicate a no storage or access zone except by qualified persons.

Employees may not enter spaces containing exposed energized parts unless illumination is provided that enables the employees to work safely.

Housekeeping in distribution rooms must receive high priority to provide a safe working and walking area in front of panels and to keep combustible materials to the minimum needed to perform maintenance.

All enclosures and distribution rooms must have "Danger: High-Voltage - Approved Personnel Only" posted on the front panel and on entrance doors.

Flammable materials are strictly restricted inside distribution rooms (Boxes, rags, cleaning fluids, etc.)

5.11 LOCK OUT AND TAG OUT

No work will be performed on (or near enough to them for employees to be exposed because of the dangers of tools or other equipment touching the live parts) live parts and the hazards they present.

If any employee is exposed to contact with parts of fixed electric equipment or circuits which have been de-energized, the circuits energizing the parts will be locked out or tagged or both.

Conductors and parts of electrical equipment that have been de-energized but not locked or tagged out will be treated as live parts.

By Hausmann Construction, Inc. policy, all electrical will be outsourced and performed only by qualified and certified or licensed electrical contractors who are familiar with the use of special precautionary techniques, PPE, insulating and shielding materials and insulated tools.

Any equipment being made ready for maintenance will be locked out by Hausmann Construction, Inc. Safety Procedure Control of Hazardous Energy - Lock Out and Tag Out.

Lockouts can be performed by the designated competent person. Designated employees in some locations may be trained by local management to lock out equipment.

If live sources are to be worked on it will only be performed with the approval of local management. Only certified electricians may work on electric circuit parts or equipment.

Only authorized personnel may perform lock out/tag out work on electrical equipment and will follow Hausmann Construction, Inc. Control of Hazardous Energy - Lock Out and Tag out Safety Procedure found in the Hausmann Construction safety procedures manual.

Authorized personnel will be trained in lock out/tag out procedures. Affected personnel will be notified when lock out/tag out activities are being performed in their work area.

5.12 CONTRACTORS

Only approved, certified, electrical contractors may perform construction and service work on Hausmann Construction, Inc. or client property.

It is the managers or supervisors responsibility to verify the contractor's certification.

5.13 FIRE EXTINGUISHERS

Approved and rated fire extinguishers must be provided near electrical breaker panels and distribution centers.

Water type extinguishers will not be located closer than 50 feet from electrical equipment.

5.14 ELECTRIC SHOCK-CPR

If someone is discovered that has received an electric shock and is unconscious, first call emergency service.

Second, verify that the energy source has been de-energized. Third, see if their body is in contact with an electrical circuit. Do not touch a person until you are sure there is no contact with an electrical circuit.

When it is safe to make contact with the victim, begin CPR if the person's heart has stopped or they are not breathing.

5.15 ELECTRIC WELDERS

A disconnecting means will be provided in the supply circuit for each motor-generator arc welder, and for each AC transformer and DC rectifier arc welder which is not equipped with disconnect mounted as an integral part of the welder.

A switch or circuit breaker will be provided by which each resistance welder and its control equipment can be isolated from the supply circuit. The ampere rating of this disconnecting means may not be less than the supply conductor ampacity.

Equipment Grounding

- All gas compressors, air compressors, separators, vessels, etc. will be grounded by means of using a lug and ground strap, nominal in size to a ½" bolt or larger, attached to a ground rod six feet or longer
- Equipment bonding jumpers will be of copper or other corrosion-resistance material
- The transfer of hazardous or flammable material from a metal or plastic container with a flash point of 100 degrees F or less will have a ground strap from the container and attached to the skid or a ground rod placed in the ground

5.16 ASSURED GROUNDING

OSHA requires that employers will use either ground fault circuit interrupters (GFCI) or an assured equipment grounding conductor program to protect personnel from electrical shock while working. Hausmann Construction projects will adopt the use of GFCIs in lieu of an assured grounding program**.**

5.17 GROUND FAULT CIRCUIT INTERRUPTERS

All 120-volt, single-phase 15 and 20 ampere receptacle outlets on construction or maintenance sites, which are not part of the permanent wiring of the building or structure which are in use by employees, will have approved ground fault circuit interrupters for personnel protection.

- All hand portable electric tools and extension cords will use a GFCI.

- Also, approved GFCI's will be used for 240-Volt circuits in the same service as described above.
- GFCI's must be used on all 120 volt, single-phase 15 amp and 20 amp receptacles within 6 feet of a sink, damp areas or on installed outdoor equipment.
- The GFCI must be the first device plugged into a permanent receptacle.
- The GFCI must be tested before each use.

6.0 TRAINING

All regular full time and temporary employees will be trained in electrical safety utilizing the Hausmann Construction, Inc. electrical safety training course or an approved equivalent.

- Employees who face a risk of electric shock, but who are not qualified people, will be trained and familiar with electrically related safety practices.
- Employee will be trained in safety related work practices that apply to their respective job assignments.
- Employees will be trained on clearance distances.

Safe work practices will be employed to prevent electric shock or other injuries resulting for either direct or indirect electrical contacts when work is performed near or on equipment or circuits which may be energized.

08.00 EXCAVATION & TRENCHING

1.0 OBJECTIVE

Excavations opened by Hausmann Construction, Inc. or subcontractors must comply these procedures and the requirements of 29 CFR Subpart P "Excavations."

2.0 PURPOSE

The intent of this procedure is to prevent incidents involving cave-ins and contact with or damage to underground utilities with the accompanying risk potential for personal injury, equipment, and property damage.

3.0 APPLICATION

This procedure covers excavations and trenches. An excavation is defined as any man made cut, cavity, trench, or depression in the earth's surface formed by earth removal. A trench is an excavation with a depth that exceeds the width, no greater than 15 feet measured at the bottom.

4.0 EXCAVATION

4.1 The following conditions will be considered before beginning an excavation project:

- Traffic.
- Nearness of structures and their conditions.
- Soil type.
- Surface water and groundwater.
- Water table.
- Overhead and underground utilities.
- Weather.
- Location purpose and use history.
- Determination by a competent person confined space hazards.

4.2 Before any excavation begins, the utility companies or their owner's representatives will be contacted to show the location of underground utilities. Most utilities need a 48-hour notice before groundbreaking and are members of a "one-call" for finding underground utilities or cleared that no utilites are present in the proposed excacation area.

4.3 Where excavations are to be performed in areas known or suspected to contain buried objects (for example, drums and tanks), the area will first be surveyed to decide the location of such objects. The suspected area will be clearly marked.

4.4 Any surface obstacles that are found near the excavation will be removed or supported if they create a hazard.

4.5 Supportive systems such as shoring, bracing, or underpinning will be provided for the stability of buildings, walls, sidewalks, pavement, and other structures that are near to the excavation area. A registered professional engineer will design the support systems.

4.6 Excavations below the base or footing of any foundation of a near structure or an retaining wall will not be allowed unless

- A support system such as underpinning is provided.
- The excavation is in stable rock.
- A registered professional engineer decides the structure will not pose a hazard.

5.0 PROTECTIVE SYSTEMS

5.1 No employee of Hausmann Construction, Inc. will enter a vertical excavation greater than 4 feet in-depth unless the excavation is made entirely in stable rock, a competent person has examined the ground and found no sign of potential cave-in, or a protective system is used.

5.2 The sides of excavations in which employees are exposed to danger from moving ground will be guarded by a protective system (sloping, benching, trench boxes, shoring, or other such protection).

5.3 Protective systems will be selected and built by the needs of Appendices B through D of 29 CFR 1926.652.

5.4 Protective systems will have the capacity to resist, without failure, loads that are intended, or could reasonably be expected, to be applied to the system.

5.5 For excavations over 20 feet in-depth, a registered professional engineer will design the protective system. The design of the protective system will be in writing. At least one copy of the design will be kept at the jobsite during excavation.

5.6 The design of a protective system that is drawn from a manufacturer's tabulated data will follow specifications, recommendations, and limitations issued or made by the manufacturer. Deviation from the specifications, recommendations, and limitations issued or made by the manufacture will be allowed only after the manufacturer issues specific written approval. A manufactured protective system's specifications, recommendations, and limitations, and written approvals will be available on the project site.

5.7 Protective systems that are required for specific applications will be designed and approved by a registered professional engineer. These designs will be in writing and include a plan indicating the size, type, and configurations of the materials to be used in the protective system. The identity of the registered professional engineer who approved the design will be recorded on the design. At least one copy of the design will be retained at the jobsite during excavation.

6.0 WORKING WITH PROTECTIVE SYSTEMS

6.1 Before and during use, protective systems such as shields (trench boxes) and shoring along with their components will be inspected in accordance with the manufacturer instructions. Defective or questionable shields, shoring, or components will not be used.

6.2 To limit soil movement in case of a cave-in, the trench boxes or shields must not have any lateral movement when installed. The shield must extend at least 18 inches above the vertical side of the excavation or lower portion of a proper slope. Shields may be a maximum of 2 feet above the bottom of an excavation if they are designed to resist loads at the full depth of the trench and if there are no indications of caving under or behind the shield. The open-end of the shield must be protected from exposed excavation walls. To prevent cave-ins, the back walls may be sloped or engineered end plated may be installed, or both, as necessary.

6.3 Workers are not allowed in the shield or trench during installation or removal or during any vertical movement of the trench box. When workers are in the trench, they will remain inside the shield and must exit the box before it is moved.

6.4 Shoring will be installed as the excavation continues. If there is a delay between digging and shoring, no one will be allowed to enter the unprotected trench. Shoring will be installed from the top-down and removed from the bottom up. The shoring must extend at least 18 inches above the vertical side of the trench or lower portion of a proper slope. The vertical and horizontal spacing of struts, wales, and sheathing will follow Appendix D of 29 CFR 1926.652, a registered professional engineer's specification, or the manufacturer's recommendations. The system will be inspected frequently when in use.

6.5 When workers are in a trench, they will remain inside the shoring/shield.

6.6 When the protective system is removed, the excavation will be backfilled immediately.

7.0 ACCESS AND EGRESS

7.1 Whether protected by sloping, shields (trench boxes), or shoring, excavations greater 4 foot in-depth will be equipped with stairs, ramps, or ladders so that workers can enter and exit safely. The means of access/egress will be placed as close as possible to the area where personnel are working and never more than 25 feet away. When ladders are used, they will extend at least 3 feet above the excavation or protective system and will be tied off at the top if possible.

7.2 Standard guardrail systems will be installed on walkways or bridges being used to cross over an excavation or trenches of 6 feet or greater in depth.

8.0 MATERIALS AND EQUIPMENT

8.1 The spoils pile will be placed at one side of the excavation. At a minimum, the toe of the spoils pile will be at least 2 feet away from the edge of the excavation. The spoils pile will be moved farther back in proportion to the depth of the excavation. The spoils pile height will not exceed the depth of the excavation and will be sloped to prevent the soil and rocks from sliding into the excavation.

8.2 Adequate protection will be provided to protect employees from loose rock or soil that could pose a hazard by falling or rolling from an excavation face.

8.3 Materials or equiptment that might fall or roll into an excavation will be kept at least 2 feet from the edge of excavations.

8.4 As pipe is placed around a trench, each section will be blocked or set so that it cannot roll.

8.5 Tools and equipment will not be thrown into or out of an excavation.

8.6 Employees working in an excavation deeper than 4 feet will remain in visual or audio contact with a person on top of the excavation. Before equipment is used to deposit material into an excavation, a signal must be given to clear the excavation and for personnel to remain a safe distance away.

8.7 Gasoline-powered equipment such as cut-of-saws will not be refueled in a trench. To prevent the accumulation of flammable vapors in a trench, refueling operations will take place away from the trench.

8.8 The exhaust of fuel-powered equipment such as dewatering pumps and generators will be positioned away from the trench to prevent the accumulation of hazardous gases and vapors in the trench.

8.9 When the depth of a trench exceeds 4 feet, the use of fuel-powered soil compactors is restricted. Compaction will be achieved by using excavator attachments or remote control compaction equipment.

8.10 Smoking is not allowed in excavations and trenches.

9.0 HAZARDOUS ATMOSPHERES

9.1 In any excavation greater then 4 feet in depth or where hazardous conditions could be reasonably expected (e.g., near landfills), atmospheric testing must take place. These excavations are to be treated as if they were confined spaces. Use testing equipment to make sure the oxygen content, toxicity, and lower explosive limits (LELs) of flammable vapors and gases are at acceptable levels before entry. (See Confined-Space Entry Procedures for more information.)

9.2 An excavation will not be entered if

- Oxygen content is less than 19.5%
- Flammable vapors and gases exceed 10% of the LELs
- Toxic vapors and gases exceed site-specific action levels
- There is not a complete assessment and determination of the excavation or trench as the whether it meets the definition of a confined space.

9.3 If the atmosphere in an excavation is discovered to be hazardous, entrance will not be made until the excavation can be properly ventilated or respiratory protection is provided.

9.4 Emergency rescue equipment such as a self-contained breathing apparatus (SCBA), a safety harness, retrieval system, or a basket stretcher will be readily accessible where hazardous atmospheric conditions exist or are expected to develop during work in an excavation. The equipment will always be accompanied by an attendant when in use.

9.5 When forced-air ventilation is used to reduce the levels of airborne hazards to acceptable levels, atmospheric monitoring will be conducted on a continuous basis at the location of work.

10.0 WATER ACCUMULATION

10.1 Diversion ditches, dikes, or other suitable means will be constructed to prevent surface water from entering an excavation and to provide adequate drainage of the area near to the excavation.

10.2 Personnel will not work in an excavation where water has accumulated or is accumulating unless adequate protection has been provided. When dewatering equipment is used to control or prevent water from accumulating, a competent person will monitor the operation.

10.3 After each rainstorm or freeze/thaw cycle, the integrity of the excavation will be determined by a competent person.

11.0 UNDERGROUND UTILITIES

11.1 Existing utilities will be located before excavating. The utility companies will be contacted to obtain locates The accuracy of locates will be considered to be 18 inches on either side of the marked underground facility unless locate instructions specifically indicate other margins of error for the boundary lines.

11.2 Excavation equipment will not be used within the margin of error of the utility's boundary lines until an additional locate is obtained. The utlity company must be recontacted to obtain the second locate.

11.3 Mechanical excavation equipment will not be used within the boundary limits of the locate until the exact location of the utility has been determined. Use the potholing procedures below or other methods to decide the exact centerline and elevation of the utility. (Note: The potholing procedure will be done according

to Hausmann Construction, Inc. procedures or under the supervision of a competent person)

- Set expectations at pre-construction meeting (the following requirements below).

- If utilities are being taken from overhead and bored underground; ask the bore contractor for the following:
  - Bore Log
  - Red-line the project's utility map

- Properly identify the excavation including the extent of benching or sloping.

- Call 811 to locate utilities.

- Remember to include lower tier utility owners (telecom, city water, sewer and storm). Always obtain positive confirmation that they are performing their locates correctly.

- Develop an Excavation Permit (Hausmann Construction, Inc. Standard Template or a job specific excavation permit). The project superintendent and the subcontractor's competent person will sign off the excavation permit.

- Evaluation of excavation

  - Depth and width of excavation
  - Shoring, sloping or benching (remember no benching in Class C soils)
  - Spoils location (minimum 2 feet from the excavation edge)

- Plan of Excavation

  - Station marks or other positive identification of the extent of excavation
  - Length, depth and width of excavation
  - Known utilities and the hand dig parameters

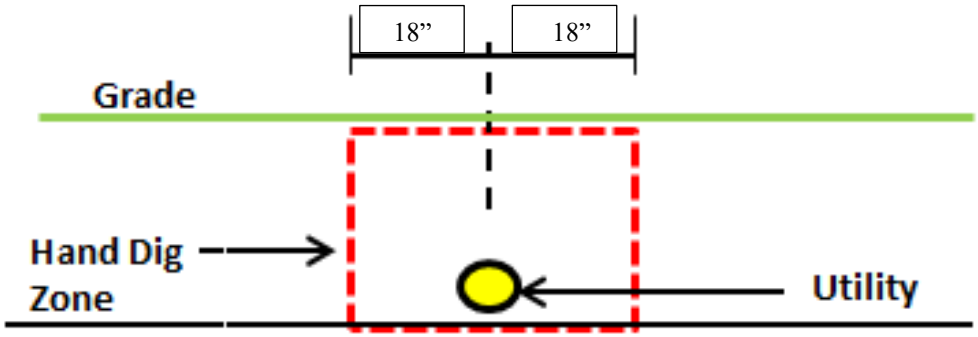
- No mechanical digging within 18 inches in every direction of a known utility.

- If pothole is subsequently obscured hand dig or re-pothole

  - Adjacent structures or encumbrances (telephone poles, etc.)

- Remember that drilling soldier pile, soil nails or other instances of disturbing native soil also require an excavation permit.

- Meet the locator on site and walk work area (before and after locates) discuss the excavation plan together.
- Ask if they are suspicious of any strange readings
- Find out what type of sweep they conducted (i.e. signal or sweep for current leakage)
- Make sure the markings are easily understood; ask for an explanation of the map if there is any confusion
- Ask for a printout of the utilities; many locators can now do this from their vehicle
- Ask them if they have any indication of the utility depth; many times they are aware, however, they may be reluctant to document their actions
- Take pictures of the locate marks and boundaries of the excavation.
- Pothole utility crossings where the trench crosses the utility (digging before all utilities have been located is prohibited).
- Pothole utilities running parallel to the trench when the locate marks are within 18 inches on either side of a marked utility. Remember a line must be defined by several points; one pothole does not define the entire utility line.
- Hand digging is required for utilities that are located less than 18 inches from the excavation. Machine excavation to within 18 inches is allowed.



11.4 Soil around and between old excavations such as utility trenches will be classified as type C soils (poor soils that are likely to cave in).

11.5 While an excavation that exposes underground utilities is open, the underground utilities will be protected, supported, or removed as necessary to safeguard employees.

11.6 Contact with or damage to utilities during excavation will be immediately reported to the utility company. The excavation will not be backfilled until the utility company representative has evaluated and repaired the damage.

12.0 COMPETENT PERSON

12.1 Excavation activities will be completed under the direct supervision of a competent person. The competent person will conduct daily inspections of the excavation, the near area, and the protective systems for evidence of situations that may result in cave-ins and indications of failure of protective systems, hazardous atmospheres, and other hazardous conditions. In accordance with 29 CFR 1926.652, the competent person will conduct manual soil tests to classify the soil type.

12.2 When the competent person finds evidence of a situation that may result in a cave-in or other hazardous conditions, exposed employees will be removed from the hazardous area until the necessary precautions have been taken to ensure worker safety.

12.3 Supervisory personnel who fail to comply with the directives of the competent person will be subject to disciplinary action.

12.4 An inspection will be conducted by the competent person before the start of work and as needed throughout shifts during which employee exposure can be anticipated.

12.5 In the event that a determination of soil type cannot be confidently made. The type of soil will be considered, Type C.

13.0 PRECAUTIONS TO BE TAKEN FOR WORKING AROUND EXCAVATIONS

13.1 Employees working in or near an excavation are required to wear a hardhat, safety glasses and a high-visibility traffic vest. Also, rubber boots are required when employees are working in mud or water.

13.2 Excavations will be backfilled as soon as possible upon completion of work. Where excavations cannot be backfilled immediately, they will be barricaded and guarded to prevent unauthorized entrance.

13.3 No employee will be permitted to be underneath the loads in lifting or digging equipment. Employees will be required to stand away from vehicles being loaded or unloaded to avoid being struck by any spillage or falling material. Employees will remain in clear view of the operator at all times.

13.4 Employees will not cross behind an operating excavator or work or walk within the swing radius of an excavator. Workers will always stay to the cab side of an excavator or other construction equipment and maintain visual contact with the operator. Where practical, the swing radius of the excavator will be barricaded.

13.5 When equipment is operated near an excavation or when equipment is required to approach the edge of an excavation, a warning system such as a signalperson, barricades, mechanical signals, or stop logs will be used.

13.6 A spotter will be posted when excavations of depths of 5 feet or greater are being dug and when workers are in the excavation. The spotter will be located on the cab side of the excavator out of the swing radius and will remain in visual or audio contact with the operator and workers in the excavation.

13.7 Workers will visually inspect the sidewalls of an excavation for signs of soil cracks, water seepage, ledges and wedges, soft pockets (clay over sand or gravel), loose material, and evidence of prior collapse. Personnel will not enter an excavation when these indicators of sidewall stress are present. Entrance into an excavation will be made only when the sidewalls have been stabilized or the hazard has been eliminated.

13.8 Workers will visually inspect the protective system for damage, missing or defective parts, and leakage of hydraulic fluid.

13.9 Workers will maintain a 2-foot distance from the edge of any excavation unless entering or exiting. Objects will not be thrown into or out of an excavation.

14.0 EMPLOYEE RIGHTS

Hausmann Construction, Inc. employees have the right to refuse to enter an excavation that does not meet the needs of this procedure. Willful negligence and knowingly creating an unprotected excavation hazard will result in discipline according to our company disciplinary policy.

09.00 FALL PREVENTION & PROTECTION

1.0 OBJECTIVE

It is the objective of Hausmann Construction, Inc. to impose a 100% fall prevention and protection program on any project where there is a fall potential of six feet or more.

2.0 PURPOSE

The fall prevention and protection procedure begin with identifying fall hazards in the workplace. Where a fall hazard exists, there are two acceptable alternatives: (1) remove the hazard, or (2) provide protection against the hazard. Where elimination of a fall hazard is not practicable or possible, workers will be protected from the hazard by a fall prevention system, which may include guardrails, warning lines, and safety nets. Where it is not practical to erect a fall prevention system, personal fall arrest will be used.

3.0 PRIMARY FALL PROTECTION SYSTEMS

The following will be considered as primary fall prevention systems:

- Floor and wall covers
- Guardrail systems
- Edge railings
- Safety nets
- Warning lines
- Controlled access zones

3.1 FLOOR AND WALL OPENINGS--DEFINITIONS

3.1.1 A floor hole is defined as an opening in a floor, or a roof or platform serving as a floor, of more than 2 inch but less than 12 inches through which materials, but not people, may fall.

3.1.2 A floor opening is defined as a floor hole that is 12 inches or greater in diameter through which a person may fall.

3.1.3 A wall hole is defined as an opening between 1 and 30 inches high and of any width in any wall or partition.

3.1.4 A wall opening is defined as an opening between 30 inches high and 18 inches wide, in any wall or partition, through which a person(s) may fall.

3.2 COVERINGS

Floor holes and openings will be securely protected by using a standard guardrail or cover. When a cover is used, it will be strong enough to support

the personnel and material that may be needed to pass over it. Covers will be secured from accidental displacement and identified: **"HOLE COVER or COVER"**

3.3 GUARDRAIL SYSTEMS

3.3.1 Guardrail systems will be erected at any location where there is a fall potential of 6 feet or more, unless it is an open-sided floor or platform. Then the guardrail system will be used at 4 feet or greater above the adjacent floor or ground level.

3.3.2 A standard guardrail system consists of a top rail, midrail, and toeboard secured to vertical posts or supports. The guardrail will be built to the following specifications:

- The top rail will be positioned at 42 inches, plus or minus 3 inches.
- The midrail will be positioned at least 21 inches high or mid-way between the top and rail and toeboard.
- The toeboard will be at least 3 ½ inches high and installed flush with the surface.
- Supporting posts will be placed no more than 8 feet apart.

3.3.3 Guardrails must be capable of withstanding a 200-pound force applied in any direction with a minimum 2 inches of deflection. Also, the guardrail system must be capable of resisting any load likely to be applied. Therefore, extra reinforcement in special situations, such as where forklifts or buggies are used, must be provided.

3.3.4 Guardrails will be built of the following materials:

- Top rail 2" x 4" lumber, 1/2" wire rope, or equivalent material
- Midrail 2" x 4" lumber, 1" x 6" lumber, 1/2" wire rope, or equivalent material
- Toeboard 1" x 3 ½" lumber or equivalent material

3.3.5 Guardrails will be installed as close to the edge as possible.

3.3.6 When guardrails must be removed, the open edge will be roped off following the warning line procedure and marked with warning signs, except where roping off the edge would interfere with the work being done (such as hoist areas). Even if the open edge is identified and a warning line access is in place, workers inside the area will use a personal fall arrest system. Open edges will not be left unattended. Guardrails will be reinstalled immediately after the work that compelled their removal is completed.

3.4 PERIPHERY RAILINGS

3.4.1 In place of a guardrail system, a periphery railing of 1/2-inch wire rope or equivalent material may be used to protect exposed edges of floors. A wire rope periphery railing consists of a top rail between 42 inches, plus or minus 3 inches, a midrail at least 21 inches high, a toeboard at least 4 inches high installed flush with the surface and supporting post placed no more than 15 feet apart.

3.4.2 The wire rope will be attached so the protection equalling that provided by a guardrail system as described in Paragraph 3.3 above.

3.4.3 The wire rope must be tight, and will not exceed 3 inches of deflection. Turnbuckles will be used to allow tightening of cables as necessary.

3.4.4 Where wire ropes are used at the edge of building floors, the wire rope will be clearly visible. This can be carried out by hanging bright flags from the rope at 6-foot intervals.

3.4.5 Periphery wire rope will be put on the side of the column that provides maximum safety for workers.

3.4.6 Employees will be required to use a personal fall arrest system when working outside perimeter cables. Guard rail systems will not be used as a means of anchorage for fall protection unless approved by a registered engineer.

3.4.7 A minimum of 2 U-bolt clips or as determined by the hardware manufacturuer will be installed on the turnback of cable rails. Employees should take care to saddle the live end of the cable.

3.5 SAFETY NETS

3.5.1 Safety nets will be provided when workplaces are more than 25 feet aboveground or water surfaces or other surfaces where the elimination of the fall cannot be achived and the use of ladders, scaffolds, catch platforms, temporary floors, lifelines, and safety harnesses is impractical. Nets will extend 8 feet beyond the edge of the work surface. Nets will be installed as closely under the work surface as is practical, but never more than 25 feet below the work surface.

3.5.2 Where safety nets are needed, operations will not be undertaken until the net is in place and has been tested. Nets will be hung with enough clearance to prevent contact of a person who has fallen into the net with the surfaces below. Such clearances will be determined by impact load testing.

3.5.3 Safety nets will be erected, maintained, and tested in accordance with the manufacturer’s or supplier’s instructions and the requirements of the

Occupational Safety and Health Administration (OSHA) found in 29 CFR 1926.502.

3.5.4 Defective nets will not be used. Safety nets will be inspected at least once a week for wear, damage, and other deterioration. Defective parts will be removed from service. Safety nets will also be inspected after any event that could affect the integrity of the safety net.

3.6 WARNING LINES

3.6.1 Warning lines will be erected around all sides of roof work areas and floor leading edges where a guard rail is not installed. Warning lines will consist of ropes, wires, or chains, and support stanchions.

3.6.2 Where mechanical equipment is used during roof, precast or steel decking work, the warning line will be erected according to the following:

- Not less than 6 feet from the roof edge that is parallel to the direction of mechanical equipment
- Not less than 10 feet from the roof edge that is vertical to the direction of mechanical equipment.

3.6.3 Where mechanical equipment is not used, the warning line will be erected not less than 6 feet from the roof edge during roofing, steel decking, or precast activities. For all other operations it will be erected not less than 15' from the leading edge.

3.6.4 Points of access and material handling and hoisting areas will be connected to the work area by an access path formed by two warning lines. When the access point is not in use, it will be closed off with the same material as the warning line. Alternatively, the access point will be offset so employees cannot walk directly into the work area.

3.6.5 The warning lines will be attached to stanchions capable of resisting, without tipping over, a force of at least 16 pounds. The line attached to the stanchion will have a minimum tensile strength of 500 pounds. The line will be attached to the stanchion in such a way that pulling on one section will not slacken another section. The line will be flagged at 6-foot intervals.

3.7 CONTROLLED ACCESS ZONES

3.7.1 The use of a controlled access zone may be used in place of other primary fall protection or personal fall arrest systems for areas where overhand bricklaying takes place. When used to control access to areas where leading edge and other operations are taking place the controlled access zone must be defined by a control line or by any other means that restricts access. Only employees engaged in overhand bricklaying,

roofing, decking or precast erection will be allowed in the controlled access zone.

3.7.2 Controlled access zones will be used only when other fall protection methods are not feasible. In the case when a controlled access zone is used the following must occur:

- A qualified person must prepare a site specific controlled access zone fall protection plan and
- A designated "Competent Person will be assigned by Hausmann Construction Safety or Management. The "Competent Person will be able to:
    - Recognize fall hazards
    - Warn employees if they are unaware of a fall hazard or if they are acting in an unsafe manner
    - Be on the same working surface and in visual sight always
    - Stay close enough for verbal communication at all times
    - Have the sole duty of monitoring as not to be distracted from the monitoring location or duties

3.7.3 Control lines will consist of ropes, wires, tapes, or equivalent materials, and supporting stanchions as follows:

- Each line will be flagged or otherwise clearly marked at not more than 6-foot intervals with high-visibility material
- Lines will be rigged and supported in such a way that its lowest point (including sag) is not less than 39 inches from the walking and working surface and no more than 45 inches from the walking and working surface
- Each line will have a minimum breaking strength of 200 pounds

3.7.4 Where control lines are used, they will be erected not less than 6 feet or more than 25 feet from the unprotected edge, except for precast erection. When precast concrete members are being erected, the control line will be erected not less than 6-feet or more than 60-feet or half the length of the member being erected or members being erected, whichever is less, from the leading edge from the unprotected edge.

3.7.5 The control line will extend along the entire length of the unprotected or leading edge and will be nearly parallel to the unprotected or leading edge. The control line will be connected on each side to a guardrail or wall.

3.7.6 When used to control access to areas where overhand bricklaying and related work are taking place:

- The controlled access zone will be defined by a control line erected not less than 10 feet or more than 15 feet from the working edge

- The control line will extend for a distance sufficient for the controlled access zone to enclose employees performing overhand bricklaying and related work at the working edge and will be nearly parallel to the working edge
- Added control lines will be erected at each end to enclose the controlled access zone

4.0 SECONDARY FALL PROTECTION SYSTEMS

Secondary fall protection is necessary when it is impossible or impractical to provide primary fall prevention. A secondary fall protection consists of full body harness, shock absorbing or limiting connector, anchor point, and rescue plan.

4.1 A full body harness and shock abosorbing lanyard or self retracting lifeline secured to an object capable of supporting 5,000 pounds (non-certified) or enginneered (certified) for each person will be used whenever working 6 feet or more above any primary lower surface. Verfiy clearance between working level and lower level or obstructions below. Once clearance is verfied select appropriate fall arrest equipment to provide protection.

4.2 A lanyard & SRL will be equipped with locking snaps featuring self-closing, self-locking keepers that remain closed until unlocked and pressed open for connection or disconnection. The feature of locking snaps reduces the possibility of forced rollout.

4.3 Each part of the personnel fall protection system will be inspected before use per the manufacturer's written instructions. Defective or damaged equipment will not be used and will be taken out of service and labeled accordingly.

4.4 When using a full body harness the attachment point will be at least as high as the D- ring. If the workers must be tied off at a lower height, shorter lanyards or alternative forms of attachment will be used. Lanyards will not be tied-off around sharp or rough edges. Tie-off straps or rope sleeves will be used as protection against abrasion and cutting.

4.5 Lifelines will be at least 1/2-inch thick and made of nylon or a material of equivalent strength. It is suggested 3/8-inch cable be used. Lifeline systems that are mounted horizontally must provide mobility to the worker. Lifelines and their parts will not be overloaded. Lifeline parts such as anchoring devices, stanchions and beam clamps and shock absorbers will be inspected daily for wear, slack, and securing devices. The parts will be installed, used and inspected by the manufactures written instructions. Defective or damaged equipment will not be used.

4.6 On suspended scaffolds or similar work platforms with horizontal lifelines, which may become vertical lifelines, the devices used to connect to a horizontal lifeline shall be capable of locking in both directions.

4.7 Horizontal lifelines shall be designed, installed, and used under the supervision of a qualified person, as part of a complete personal fall arrest system, which maintains a safety factor of at least two (2). **A qualified person is someone who has extensive knowledge or training on the subject matter.** At Hausmann Construction, Inc., we will use an engineer for any design.

4.8 When vertical lifelines are used, each employee shall be attached to a separate lifeline and utilize a 3.5' shock absorbing lanyard or connecting device as required by the manufacturer. The vertical lifeline rope must be visually inspected for cuts, burns, abrasions and defects. Any defects noted will necessitate the lifeline removal of use.

4.10 Harnesses and components shall be used only for employee protection (as part of a fall arrest system or positioning device system) and **NOT** to hoist materials.

4.11 Personal fall arrest systems and components subjected to impact loading shall be immediately removed from service and shall not be used again for employee protection until inspected and determined by a competent person to be undamaged and suitable for reuse.

4.12 Personal fall arrest systems, when stopping a fall, shall:

- ⇨ Limit maximum arresting force on an employee to 1,800 pounds when used with a body harness;
- ⇨ Be rigid such that employees can neither free fall more than neither six (6) feet nor contact any lower level;
- ⇨ Bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet; and
- ⇨ Have sufficient strength to withstand twice the potential impact energy an employee free falling a distance of six (6) feet, or the free fall distance permitted by the system, whichever is less.

NOTE: *If the personal fall arrest system meets the criteria and protocols contained in Subpart M, and if the system is being used by an employee having a combined person and tool weight of less than 310 pounds, the system will be considered to be in compliance. If the system is used by an employee having a combined tool and body weight of 310 pounds or more, then the employer must appropriately modify the criteria to provide proper protection for such heavier weights, or the system will not be deemed to be in compliance.*

5.0 GENERAL FALL PREVENTION PROCEDURES

5.1 Walking and working surfaces will be free or floor openings and open sides. As needed, openings and holes will be covered or protected with guardrail systems so that they are no longer a hazard.

5.2 Personnel will keep walking and working surfaces clean and orderly. Tools must not be left lying of surfaces where they present tripping hazards during a job or after a job. Oil spills, mud, snow, or slippery spots will be immediately cleaned up or sanded.

5.3 Ladders will extend 36 inches above their uppermost landing and be secured by a rope at the top and bottom holding the ladder.

5.4 Personnel riding or working from any aerial lift will have a body harness and lanyard with the lanyard secured to the manufacturer's attachment point. *(see procedure 02.00)*

5.5 A stairway or ladder will be provided at all points of personnel access where there is a break in elevation of 19 inches or more. This includes box trailers and loading docks.

5.6 Scaffolding will not be erected, moved, or dismantled except under the supervision of a competent person. Scaffolding will be erected on a secure base capable of carrying the maximum load without settling or displacement.

5.7 Workers will maintain 3 points of contact when mounting or dismounting equipment and ladders.

5.8 Employees will not jump from raised platforms or working surfaces regardless of their distances from ground level.

5.9 Aerial lifts will be used when other methods such as ladders and scaffolds are not practical.

5.10 Hausmann Construction, Inc. prohibits the use of a safety monitor for operations that expose employees to potential fall hazards.

6.0 PROTECTION FROM FALLING OBJECTS

6.1 When used as protection against falling objects, toe boards will be erected along the edge of the overhead walking or working surface for a distance sufficient to protect employees below. When toe boards are used, the following must be met:

- Toe boards will be capable of withstanding, without failure, a force of at least 50 pounds applied in any downward or outward direction at any point along the toeboard
- Toe boards will be a minimum of 3-1/2 inches high from their top edge to the level of the walking or working surface. They will have not more than 1/4-inch clearance above the walking or working surface. They will

have no openings over 1 inch in greatest dimension; preferably, they will be solid

6.2 Where tools, equipment, or materials are piled higher than the top edge of a toeboard, paneling or screening will be erected from the walking or working surface or the toeboard to the top of a guardrail system's top rail or midrail, for a distance sufficient to protect employees below. In situations where a screen or panel is not used, material must be stored a minimum of 6 feet away from the railing or the height of the pile plus 4 feet.

6.3 Guardrail systems, when used as falling object protection, will have openings small enough to prevent passage of potential falling objects.

6.4 While performing overhand bricklaying and related work:

- No materials or equipment except masonry and mortar will be stored within 4 feet (1.2 m) of the working edge.
- Excess mortar, broken or scattered masonry units, and all other materials and debris will be kept clear from the work area by removal regularly

6.5 While performing roofing work:

- Materials and equipment will not be stored within 6 feet (1.8 m) of a roof edge unless guardrails are erected at the edge
- Materials that are piled, grouped, or stacked near a roof edge will be stable and self-supporting

6.6 Canopies, when used, as falling object protection, will be strong enough to prevent collapse and to prevent penetration by any objects that may fall onto the canopy.

7.0 POST FALL RECOVERY & RESCUE

7.1 At each jobsite where fall arrest equipment is utilized a site specific post fall recovery and rescue procedures must be developed and communicated by the foreman or supervisor in charge of the operation. The plan will be developed using and considering the following guidelines.

When a fall occurs, follow these guidelines:

- Determine the seriousness of any injury to the fallen employee.
- Determine the most effective means of rescue.
- Call emergency services if needed.
- Allow only trained personnel to participate in the rescue.
- Stabilize the injured employee, if possible, prior to moving him to prevent further injury.
- Lower the employee to a safe area.
- Re-evaluate injuries, if any.

- Transport to the pre-designated medical facility, if treatment or drug test is required.
- Check fall protection systems immediately to determine damage and possible cause.
- Remove the employee's full body harness and lanyard from service and return for inspection by competent persons.
- Always conduct an investigation.

Rescue equipment must be available for use in close proximity of each work area at all times where employees are exposed to falls. The following equipment may be used:

- Ladders
- Mobile scaffold
- Aerial Lifts
- Rescue Positioning Device (RPD)
- Local Fire Department. – Check with the provider before starting the job to determine they have the training and equipment to conduct a rescue.

7.2 All rescue equipment ties back to the building or structure must be tied back to an anchorage point capable of withstanding 3,600lbs of force in all directions.

7.3. Never attempt a rescue unless you have been trained in the procedures and plan for the situation.

8.0 TRAINING

8.1 Training will provide for each employee who might be exposed to the hazards of falling. Employees will be trained to recognize the hazards of falling and the procedures to be followed to lessen these hazards. Specifically, this training will include:

- The nature of fall hazards in the work area
- The correct procedures for erecting, preserving, disassembling, and inspecting the fall protection to be used
- The use, care, and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, controlled access zones, and other protection to be used
- The limits on the use of mechanical equipment during performing roofing work on low-sloped roofs
- The correct procedures for the handling and storage of equipment and materials and erecting overhead protection
- Information contained in this procedure and 29 CFR 1926, Subpart M

Employee training will be verified by a written certification record. The written certification record will contain the name or other identity of the employee trained, the date(s) of the training, and the signature of the person who conducted the training**.**

8.2 When supervisory personnel or the health and safety representative has reason to believe that an employee who has been trained does not have the understanding and skill needed to protect himself or herself from the hazards of falls and to use the various means of fall protection, that employee will be retrained.

Circumstances where retraining is required include but are not limited to:

- Changes in the workplace make previous training obsolete
- Changes in the types of fall protection systems or equipment to be used make previous training obsolete
- Inadequacies in an affected employee's knowledge or use of fall protection or equipment suggest the employee has not kept the needed understanding or skill

8.3 Employees will be trained in the reporting requirements for incidents and near misses as outlined in the Hausmann Construction, Inc. Incident Reporting Procedure. Each incident and near miss will be investigated by Hausmann Construction, Inc. project superintendent or designee. If a change is made in the Fall Protection procedure employees will be trained in the change (s) made before beginning work.

8.4 Employees will review the site specific safety plan prior to mobilization to the work site and before beginning work. Site specific safety plans will include a plan for ensuring prompt rescue of a personnel in the case of a fall and/or ensure that the employee is able to rescue themselves.

10.00 FIRE PREVENTION & PROTECTION

1.0 OBJECTIVE

Hausmann Construction, Inc. employees play an active role in preventing fires, which may result in loss of life or property damage which often are the result of ignition of combustible or flammable materials.

2.0 PURPOSE

This procedure establishes criteria for the prevention of fires as related to the workplace and for notifying employees and the fire department.

3.0 INTRODUCTION

The three elements needed to have and maintain a fire are heat, oxygen and fuel. Heat comes from sources of ignition and can include open flames, overheated electrical parts, or heated surfaces such as light bulbs. Oxygen in the air is readily available in the air we breathe, though other sources include welding cylinders and compressed air tanks. Oxygen in high concentration lowers the temperature necessary to ignite flammable material, making is particularly dangerous. Fuel can be combustible or flammable materials such as paper, gasoline and propane.

4.0 GENERAL REQUIREMENTS

4.1 RESPONSIBILITY AND PLANNING

The project supervisor and the appointed safety representative will be responsible for the implementation and enforcement of fire prevention procedures. Before the start of work, the project supervisor or designee will inform the local fire department of activities to be conducted on the site and make arrangements for fire-fighting.

Each operation regardless of duration will require a hazard analysis. This hazard analysis will cover any potential fire causing elements of the operation and identify steps that will be taken to hopefully eliminate the potential for fire.

4.2 TRAINING

Employees will be trained in the use of portable fire extinguishers and other fire suppression devices upon initial employment and least annually thereafter. Employees will also receive training in the method used to report fires, the alarm system used to notify employees in the event of a fire, what

to do in the event of a fire, and the location of the telephone for calling the local fire department. This information can be found in our site-specific emergency action plan. Extinguisher training should happen periodically throughout the project to maintain knowledge in fire prevention/protection. Re-training will be provided any time there is a recognized lack of knowledge or changes in policy in this section.

4.3 INSPECTIONS

The following inspection points should be reviewed periodically during the project. Each of these items must be followed to ensure the project is free from fire hazards.

- Store oxygen and fuel cylinders in racks and cages away from sources of heat or ignition. Cages must have 5 ½ foot tall firewall that has a ½ hour fire rating, when storing oxygen and fuel gas in the same cage. If the cage does not have a proper firewall, oxygen and fuel gas must be separated at least 20 feet apart. All cylinders must be upright and secured with caps in place. See additional information in welding and cutting section.
- Provide escape exits wherever flammable materials are used or stored.
- Do not use tar heaters inside buildings or on roofs.
- Maintain housekeeping as work progresses.
- Provide covered containers for disposal of oily rags and other combustible waste.
- Provide a well-ventilated area for hanging greasy work clothes in shops and locate away from heat and ignition sources.
- Keep fuel and oil spillage cleaned up.
- Never use gasoline or starting fluid for washing parts. Use a commercial solvent with a flash point of at least 140 degrees, diesel fuel or kerosene.
- Enforce “No Smoking” rules wherever there is fueling or storage of highly volatile materials. Post “No Smoking” or “No Open Flame” signs, around any storage where flammable liquids are stored. Refer to OSHA or state agency regulations for flammable liquid and/or material storage.
- Turn off engines before fueling.
- Follow safe practices in cutting and welding.
- Use care when placing, maintaining and inspecting salamanders (small heaters such as kerosene, or propane). At a minimum, they should be placed 10ft. away from any combustible coverings or materials.

- Never use gasoline or other highly volatile materials to start fires.
- Ensure that propane heaters have automatic shut off valves to stop the flow of gas if the flame goes out.
- Check extinguishers monthly to determine that they are all in working order.
- Check the gauge to ensure it is ready to use.
- Turn the extinguisher upside down three times to agitate the chemical (Heft Test).
- Identify that all equipment is in place and working i.e. the locking pin is secure and in place, annual inspection tag, etc.
- Perform annual inspection (performed by vendor or extinguisher Maintenance Company).
- Maintain monthly check list on each extinguisher.

4.4 FIRE PROTECTION

4.4.1 FIRE EXTINGUISHERS

Type ABC fire extinguishers should be used on site unless there is a specific project requirement for other firefighting equipment.

Fires are classified as A, B, C, D and K:

Class A: Ordinary combustible material such as wood, paper and cloth.

Class B: Flammable liquids (and gases) such as gasoline, paints and flammable solvents. The fire is actually in the fumes over the liquids.

Class C: Energized electrical circuits.

Class D: Combustible metals like magnesium, sodium and zirconium. Although not very common, these fires are extremely dangerous, and require a special extinguisher to control the fire.

Class K: Hot oil or grease fire. Typically a cooking fire, but could include medium and low curing asphalts and some machining oils. Similar to class B but with a flash point above 140 degrees.

GENERAL REQUIREMENTS

1. Each project will be required to implement a fire protection program that will identify all firefighting needs and responsibilities. As fire hazards occur there will be no delay in providing necessary equipment to extinguish the fire. In order to follow this standard each project will have to incorporate a plan to fight fire on site.
2. Access to all firefighting equipment will be maintained at all times.
3. All firefighting equipment, provided by Hausmann Construction, Inc. will be conspicuously located.
4. All firefighting equipment will be inspected by a competent person (monthly), and maintained in operating condition. Defective equipment will be replaced or repaired immediately.
5. Near each exit of a field office trailer or storage containers there will be found a trickles dry chemical fire extinguisher rated not less than 2A:10B:C.
6. During demolition or changes, existing fire protection will be kept in-service as long as reasonable. The local fire department and the insurance company will be told when a fire protection system is taken out of or returned to service.
7. Triclass dry chemical fire extinguishers rated not less than 20A:120B:C will be provided within 50 feet of wherever more than 5 gallons of flammable or combustible liquids or 5 pounds of flammable gas are being used on the jobsite.
8. Heavy equipment will be equipped with a triclass dry chemical fire extinguisher rated not less than 2A:10B:C.
9. Each company-owned or leased vehicles will be equipped with an 1A:10B:C dry chemical fire extinguisher.
10. A trickles dry chemical fire extinguisher rated not less than 2A:10B:C will be found near generator sets or dewatering pumps, tar kettles, etc.

4.4.2 FIRE EXTINGUISHER LOCATIONS

In general we will have at least one fire extinguisher within 100 feet of any operation on site. This will require one fire extinguisher placed not more than 200 feet apart to allow an employee to not have to travel more than 100 feet to obtain an extinguisher.

Extinguishers will also be located at common access points to the structure or work area, for example; stair towers (top and bottom), access ramp.

An extinguisher will be kept in each company vehicle and on each piece of human occupied or flame generating equipment on site.

During welding, cutting, brazing or burning an extinguisher will be located at the operation.

4.4.3 Fire Extinguisher Use

Before considering extinguishing a fire, employees are responsible to determine that the size and area that can be handled by the extinguisher. This can be estimated by visually looking at the fire and assessing whether the square footage can be effectively extinguished based on experience and/or extinguisher classification. If a determination cannot be made, the employee shall leave the area immediately and initiate our emergency evacuation and response procedures for the site. When the fire can be extinguished without additional hazard to the employee, the PASS process should be utilized. The PASS procedure is:

- **P**ull – Pull the pin on the fire extinguisher.
- **A**im – Aim the fire extinguisher at the base of the fire. This is where the fuel source is.
- **S**queeze – Squeeze the handle of the fire extinguisher. Release to stop flow. Keep in mind, some extinguishers may have a button instead of a handle.
- **S**weep - Sweep the extinguisher side to side. Move in slowly toward the base of the fire. Watch for re-igniting. Repeat as necessary.

4.4.4 PORTABLE FIRE FIGHTING EQUIPMENT

1. A fire extinguisher rated not less than 2A will be provided for each 3,000 square feet of a combustible building area. Travel distance from any point of the protected area to the nearest fire extinguisher will not exceed a horizontal distance of 100 feet.
2. One or more fire extinguishers rated not less than 2A will be provided on each level of a multi-story building adjacent to the stairway, or stair tower.
3. A fire extinguisher rated not less than 10B will be provided within 50 feet of more than 5 gallons of flammable or combustible liquids or 5 pounds of flammable gas is being used on site.
4. Portable fire extinguishers will be inspected monthly.

4.5 FIRE PREVENTION

4.5.1 IGNITION HAZARDS

1. Internal combustion powered equipment will be located so exhausts are away from combustible materials. When exhausts are piped out of a building, this pipe must maintain at least a 6” clearance from combustible material.

2. Smoking must not be allowed in the vicinity of operations which constitute a fire hazard, and will be conspicuously posted: “No smoking or open flame.”
3. Workers will not take open lights or open flames in the vicinity of an open sewer manhole, gas main, conduit or other similar place until the absence of explosive or harmful gas is assured.

4.5.2 TEMPORARY BUILDINGS

1. Temporary buildings will not be erected where they will adversely affect any means of exit or fire lanes.

2. Temporary buildings located within another building will be constructed out of noncombustible material or of material having a fire rating of not less than 1 hour.

3. Temporary buildings located other than inside a building will be located at distances of not less than 10 feet from other BUILDINGS. A GROUP OF TEMPORARY BUILDINGS NOT EXCEEDING 2,000 square feet is considered a single temporary building.

4.5.3 OPEN YARD STORAGE

1. Driveways in or around combustible storage piles will be at least 15 feet wide and maintained free from accumulation of trash, equipment or materials.
2. Keep combustible material storage to a minimum.
3. No combustible material will be stored within 10 feet of a building or occupied structure.
4. Fire extinguishers will be placed in conspicuous locations not to exceed 100 feet apart.

4.5.4 INDOOR STORAGE

1. Storage will not obstruct or adversely affect means of exit.
2. All materials will be stored, handled and stacked with regard to their fire characteristics.
3. Material will not be stored within 36” of a fire door.
4. Standards must be followed in regards to allowed quantity of combustible material that is allowed to be stored indoors. OSHA and local requirements must be referenced.

4.6 FLAMMABLE AND COMBUSTIBLE LIQUIDS

1. Flammable liquids will be kept in approved safety cans. Only Type I or Type II safety cans will be used. Safety cans shall be

equipped with a dispensing funnel or hose, and each container will be clearly labeled. Flammable liquids will be kept in closed containers when not in use.

2. Flammable and combustible materials will not be stored in areas used for exits or stairways or areas normally used for safe passage of people.
3. Containers used for flammable liquids will be removed from a vehicle (e.g., a pickup truck with a bed liner) before the container is filled.
4. Flammable and combustible materials will be purchased on an as-needed basis to lessen the potential for fires and spills. When available, drums of flammable and combustible materials will be returnable (deposit containers).
5. Flammable and combustible materials will be stored away from sources of ignition and areas where hot work is performed. Flammable material storage areas will be clearly marked with signs reading "FLAMMABLE — No smoking or open flames within 50 feet."
6. The storage of flammable and combustible materials will be under applicable local, state, and federal requirements.
7. Liquefied petroleum gas (LPG) gas cylinders will not be used or stored in any structure. LPG gas vehicles are allowed to be used in buildings and structures. LPG gas will be stored and filled at a minimum distance of 50 feet from the nearest building. Appliances using LP gas will conform to 29 CFR 1926.153.
8. Liquefied petroleum gas (LPG) gas cylinders will not be used or stored in any structure. LPG gas vehicles are allowed to be used in buildings and structures. LPG gas will be stored and filled at a minimum distance of 50 feet from the nearest building. Appliances using LP gas will conform to 29 CFR 1926.153.

4.6.1 INDOOR STORAGE OF FLAMMABLE AND COMBUSTIBLE LIQUIDS

1. The indoor storage of flammable and combustible liquids will be limited to 25 gallons, and the liquids must be in approved containers. Quantities of flammable and combustible liquids over 25 gallons will be stored in an approved flammable-liquid storage cabinet. No more than 60 gallons of flammable or 120 gallons of combustible liquids shall be stored in a single storage cabinet. No more than 3 such cabinets may be located in a single storage area.
2. In every inside storage room there shall be maintained one clear aisle at least 3 feet wide.

4.6.2 STORAGE OUTSIDE BUILDINGS

1. Flammable and combustible materials will be stored a minimum of 20 feet away from buildings and structures. The storage area will be graded in a manner to direct possible spills away from buildings or other exposures or will be surrounded by a curb at least 6 inches high. One portable fire extinguisher (20A:120B: C) will be located within 10 feet of the storage area.
2. Drums containing flammable liquids will be grounded when in use. The drum will be equipped with a self-closing faucet and a bung vent. A safety drip can will be positioned below each drum faucet to catch drips.
3. Containers of flammable liquids will be grounded and be provided with a bonding wire for interconnecting between containers during material transfer.
4. Bulk transfers of flammable liquids will be made with an explosion-proof pump (diaphragm pump). Only drum pumps that are approved by a nationally recognized testing laboratory will be used.
5. Containers (tanks) used for the bulk storage of petroleum products will be in above- ground storage tanks. The tanks will be UL listed or FM approved and be equipped with a secondary containment. Before mobilizing the tank (s) the local Fire Marshal's office will be contacted. Where applicable, the tanks will be registered.
6. Liquefied petroleum gas (LPG) gas cylinders will not be used or stored in any structure. LPG gas vehicles are allowed to be used in buildings and structures. LPG gas will be stored and filled at a minimum distance of 50 feet from the nearest building. Appliances using LP gas will conform to 29 CFR 1926.153.

4.7 LIQUEFIED PETROLEUM GAS (LPG)

4.7.1 CONTAINER VALVES AND CONTAINER ACCESSORIES:

1. Valves, fittings, and accessories connected directly to the container, including primary shut off valves, will have a rated working pressure of at least 250 p.s.i. and will be of material and design suitable for LPG service.

4.7.2 SAFETY DEVICES

1. Every container and every vaporizer will be provided with one or more approved safety relief valves or devices. These valves will be arranged to afford free vent to outside air.
2. Fuel shutoff valves will not be installed between the safety relief device and the container, or the equipment or piping to which the safety relief device is connected.

4.7.3 DISPENSING

1. Filling of fuel containers for trucks or motor vehicles from bulk storage containers will be performed not less than 10 feet from the nearest masonry-walled building, or not less than 25 feet from the nearest building or other construction and, in any event, not less than 25 feet from any building opening.
2. Filling of portable containers or containers mounted on skids from storage containers will be performed not less than 50 feet from the nearest building.

4.7.4 CONTAINERS AND EQUIPMENT USED INSIDE OF BUILDINGS OR STRUCTURES

1. Systems utilizing containers having a water capacity greater than 2 1/2-pounds (nominal 1 pound LPG capacity) will be equipped with excess flow valves. Such excess flow valves will be either integral with the container valves or in the connections to the container valve outlets.
2. Regulators, when required, will be either directly connected to the container valves or to manifolds connected to the container valves. The regulator will be suitable for use with LPG.
3. Valves on containers having water capacity greater than 50 pounds (nominal 20 pounds LP-gas capacity) will be protected from damage while in use or storage.
4. Aluminum piping or tubing will not be used.

5. Portable heaters, including salamanders, will be equipped with an approved automatic device to shut off the flow of gas to the main burner, and pilot, in the event of flame failure. Such heaters, having outputs above 50,000 BTU per hour, will be equipped with either a pilot, which must be lighted and proved before the main burner can be turned on, or an electrical ignition system.

Note: The provisions of this subdivision do not apply to portable heaters under 7,500 BTU per hour output when used with containers having a maximum water capacity of 2 1/2 pounds.

6. Container valves, connectors, regulators, manifolds, piping, and tubing will not be used as supports for heaters.
7. Containers, regulating equipment, manifolds, pipe, tubing, and hose will be located to minimize exposure to high temperatures or physical damage.
8. Containers having a water capacity greater than 2 1/2 pounds (nominal 1 pound LPG capacity) connected for use will stand on a firm and substantially level surface and, when necessary, will be secured in an upright position.
9. The maximum water capacity of individual containers will be 245 pounds (nominal 100 pounds LPG capacity).
10. For temporary heating, heaters (other than integral heater-container units) will be located at least 6 feet from any LPG container. This will not prohibit the use of heaters specifically designed for attachment to the container or to a supporting standard, provided they are designed and installed so as to prevent direct or radiant heat application from the heater onto the containers. Blower and radiant type heaters will not be directed toward any LP-gas container within 20 feet.
11. If two or more heater-container units, of either the integral or non-integral type, are located in an un-partitioned area on the same floor, the container or containers of each unit will be separated from the container or containers of any other unit by at least 20 feet.
12. When heaters are connected to containers for use in an un-partitioned area on the same floor, the total water capacity of containers, manifolded together for connection to a heater or heaters, will not be greater than 735 pounds (nominal 300 pounds LPG capacity). Such manifolds will be separated by at least 20 feet.

4.7.5 MULTIPLE CONTAINER SYSTEMS

1. Valves in the assembly of multiple container systems will be arranged so that replacement of containers can be made without shutting off the flow of gas in the system. This provision is not to be construed as requiring an automatic changeover device.
2. Heaters will be equipped with an approved regulator in the supply line between the fuel cylinder and the heater unit. Cylinder connectors will be provided with an excess flow valve to minimize the flow of gas in the event the fuel line becomes ruptured.
3. Regulators and low-pressure relief devices will be rigidly attached to the cylinder valves, cylinders, supporting standards, the building walls, or otherwise rigidly secured, and will be so installed or protected from the elements.
4. Storage of LPG within building is prohibited.

4.7.6 STORAGE OUTSIDE OF BUILDINGS

1. Storage outside of buildings, for containers awaiting use, will be located from the nearest building or group of buildings, in accordance with the Table below:

Quantity of LPG stored	**Distance (feet)**
500 lbs. Or less	0
501 to 6,000 lbs.	10
6,001, to 10,000 lbs.	20
Over 10,000 lbs.	25

5. Containers will be in a suitable ventilated enclosure or otherwise protected against tampering or possible damage by vehicular traffic.
6. Storage locations will be provided with at least one approved portable fire extinguisher having a rating of not less than 20-B: C.

4.8 TEMPORARY HEATING DEVICES

4.8.1 VENTILATION

1. Fresh air will be supplied in sufficient quantities to maintain the health and safety of workers. Where natural means of fresh air supply is inadequate, do not operate heater system until supplemental air can be provided.
2. When heaters are used in confined spaces, special care will be taken to provide sufficient ventilation in order to ensure proper combustion, maintain the health and safety of workers, and limit temperature rise in the area.

4.8.2 CLEARANCE AND MOUNTING

1. Temporary heating devices will be installed to provide clearance to combustible material not less than the amount shown in the table.
2. Temporary heating devices, which are listed for installation with lesser clearances than specified in the table below, may be installed in accordance with the manufacturer's approval.

Heating appliances	**Minimum clearance, (inches)**		
	Sides	Rear	Chimney Connector
Room heater, circulating type	12	12	18
Room heater, radiant type	36	36	18

3. Heaters are not suitable for use on wood floors will not be set directly upon them or other combustible materials. When such heaters are used, they will rest on suitable heat insulating material

or at least 1-inch thick concrete, or equivalent. The insulating material will extend beyond the heater a minimum of two feet in all directions.

4. Heaters used in the vicinity of combustible tarpaulins, canvas, or similar coverings will be located at least 10 feet from the coverings. The coverings will be securely fastened to prevent ignition or upsetting of the heater due to wind action on the covering or other material.
5. Heaters, when in use, will be set horizontally level, unless otherwise permitted by the manufacturer's markings.
6. Portable electric heaters will be equipped with automatic shut-off devices. The heaters will be located away from sources of combustion.

4.8.3 OIL-FIRED HEATERS

1. Flammable liquid-fired heaters will be equipped with a primary safety control to stop the flow of fuel in the event of flame failure. Barometric or gravity oil feed will not be considered a primary safety control.
2. Heaters designed for barometric or gravity oil feed will be used only with the integral tanks.
3. Heaters specifically designed and approved for use with separate supply tanks may be directly connected for gravity feed, or an automatic pump, from a supply tank.

4.8.4 PROPANE AND GAS HEATERS:

1. All fittings and connections will be inspected for leaks.
2. Each heating unit will have an automatic shut off device
3. When a heater fails or turns off, the heater must be inspected before the flame is restored.
4. Place the heater away from any combustible material.

4.9 WELDING AND CUTTING

1. If the object to be welded or cut cannot be moved and if all fire hazards cannot be removed, then guards and shields will be used to confine the heat, sparks, and slag, and to protect the immovable fire hazards.
2. Before welding or cutting is performed outside the named shop area, supervisory personnel will inspect the area for the presence of flammable and combustible materials, including vapors and gases. Hot work log will be filled and signed off by personnel performing work as well as proejct superintendent before cutting, welding, and hot work performed in areas where control measures cannot be achieved.
3. A fire watch will be required whenever welding or cutting is performed in locations where combustible materials are closer than 35 feet away from the point of operations, or where significant amounts of combustibles are more than 35 feet away but are easily ignited by sparks.
4. A fire watch will be needed when combustible materials are next to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by conduction or radiation. The fire watch will be maintained for at least a half hour after completion of welding or cutting operations, so possible smoldering fires will be detected and extinguished. The fire watcher will be equipped with a fire extinguisher and a means for sounding the fire alarm.
5. Where combustible materials such as paper clippings, wood shavings, or dust are on the floor, the floor will be swept clean for a radius of 35 feet around the cutting or welding operation. Combustible floors will be kept wet, covered with damp sand, or protected by fire-resistant shields. Any floor opening or crack will be closed or sealed with a fire-resistant shield or covering.
6. Reverse flow check valves will be installed between the hose and torch inlet. Flashback arresters will be installed in front of gas regulators.
7. Cylinders will be shut off and regulator screws backed out. Wrenches and keys will be left in all fuel gas cylinders. Oxy-fuel gas cylinders will be transported with the regulators removed and the cylinder caps replaced. Empty cylinders will be marked empty (MT).

4.10 ELECTRICAL

1. A 6-foot clearance will be preserved between workspaces and electrical equipment such as switches, circuit breakers, motor controllers, relays, and similar equipment.
2. Electrical wiring and equipment used in hazardous environments will be intrinsically safe under 29 CFR 1926.407.
3. Lamps used for general illumination will be protected from accidental contact and breakage.
4. Electrical wiring will conform to the requirements of the current edition of the National Electrical Code (NEC).
5. Electrical equipment will be installed and maintained according to the manufacturer's instructions to prevent overheating and overloading.
6. Each pull box, junction box, outlet box, or similar equipment will be provided with covers.
7. Extension cord sets and temporary wiring will be protected from heat, sparks, and chemical attack. The wiring will be the proper size to handle the load. Wiring will not be placed on or near combustible materials. Extension cords will not be laid over rough ground or sharp edges.
8. Household appliances used on-the-job will be grounded. Office machinery and coffeepots will be turned off at the end of the day. The last person out is responsible for turning off the appliances. Appliances labeled "for residential use only" will not be used for construction activities.

4.11 ARSON PREVENTION

1. Project sites will be well illuminated and, when practical, patrolled by a guard service after hours. The guard will report unusual activity at once to the project manager. When practical, the jobsite will be fenced in. The area to be fenced in will include office trailers, equipment storage yards, and storage areas for flammable liquids.
2. Flammable and combustible materials will be secured to deter arsonists. This precaution will include locking fuel tanks and bulk storage tank dispensers and ports.

4.12 HOUSEKEEPING

1. Heaters used near combustible tarpaulins, canvas, or similar coverings will be found at least 10 feet from such coverings. Coverings will be securely fastened to prevent them from being ignited or upsetting the heater.
2. Open-flame heating devices having exposed fuel below the flame will not be used.
3. Flammable liquids with a flash point below 100° Fahrenheit will not be used for cleaning purposes.
4. Fire lanes providing access to areas will be set up and kept free from obstacles. Vehicles, equipment, materials, and supplies will not be placed so access to fire hydrants or other firefighting equipment is obstructed.
5. Exits will be set up and the exit and exit pathway will be kept free of obstacles.
6. Clearances of 36 inches will be kept between the top level of stored material and sprinkler head deflectors.
7. Open flames will not be left unattended.
8. Open burning is not allowed
9. Smoking will be restricted in areas where flammable, combustible, or oxidizing materials are stored or used. "NO SMOKING" and "OPEN FLAMES" signs will be posted in restricted areas. Smoking will be limited to named areas.
10. Storage and construction sites will be kept free from the build-up of combustible materials. Combustible materials will not be piled higher than 20 feet. Indoor storage areas will not obstruct or adversely affect means of exit. Materials will be stored, handled, and piled with due regard to their fire characteristics. Noncompatabile materials that may create a fire hazard, will be separated by a 1-hour fire-resistant barrier.
11. Rubbish, brush, long grass, or other combustible materials will be kept from areas where flammable and combustible liquids are stored or handled and away from office trailers and temporary structures.
12. Build-up of flammable and combustible liquids on floors is prohibited. Spills of flammable and combustible liquids will be cleaned up immediately.
13. Separately covered, self-closing metal containers will be used for the collection of oily, flammable, and dangerous wastes. The containers will be labeled with a description of their contents. The contents will be properly disposed of daily.
14. Equipment using flammable liquid fuel will be shut down during refueling, servicing, and maintenance. When practical, refueling will take place away from other sources of ignition and in an outdoor location.

4.13 FIRE ALARM SYSTEM

1. On each project, an alarm system (siren, air horn, etc.) will be established to alert employees of a fire. On project with 10 or less employees, the alarm system can be verbal warnings. In addition, a telephone system will be used to contact the local fire department.

2. Employees will be instructed on the means and methods used to report a fire and on the use of the fire alarm system.

3. The alarm code, reporting instructions, and emergency telephone numbers will be conspicuously posted at telephones and at employee entrances.

4. The site supervisor or appointed safety representative will establish a gathering spot for employees to report to if there is a fire. The site supervisor or appointed safety representative will be responsible for conducting a head count to find out that personnel are accounted for.

11.00 HAZARDOUS ENERGY CONTROL (LOTO)

1.0 PURPOSE

The purpose of this program is to establish Hausmann Construction, Inc. procedures for affixing appropriate lockout and tagout equipment to energy isolating devices and to disable machines or equipment to prevent unexpected energization, start up or release of stored energy to prevent injury or incident.

2.0 SCOPE

This program covers the servicing and maintenance of machines and equipment where the unexpected energization or startup of the machine or equipment, or the release of stored energy could cause an incident. This program establishes minimum performance requirements for the control of such hazardous energy. This document covers Hausmann Construction, Inc. employees and subcontractors and will be used on all projects, unless a more restrictive program is required by contract.

3.0 DEFINITIONS

Affected employee - An employee whose job requires them to operate or use a machine or equipment on which servicing and maintenance is being performed under lockout and tag out, or whose job requires the employee to work in an area in which such servicing or maintenance is being performed.

Authorized employee - A person that performs lockout and tag out procedures on machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes authorized when that employee's duties include performing servicing or maintenance covered under this program.

Blanking or Blinding - The absolute closure of a pipe, line, or duct, by fastening across its bore a solid plate or "cap" which completely covers the bore; which extends at least to the outer edge of the flange at which it is attached; and which is capable of withstanding the maximum upstream pressure. Blank flanges and bolted slip blinds are considered as lockout devices.

Capable of being locked out - An energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out if lockout can be achieved without the need to dismantle, rebuild or replace the energy isolating device or permanently alter its energy control capability.

De-Energized - Disconnected from all energy sources and not contain residual stored energy.

Energized - Connected to an energy source or containing residual or stored energy.

Energy isolating device - A mechanical device that physically prevents the transmission or release of energy including, but not limited to, the following:

- A manually operated electrical circuit breaker, a disconnect switch, a manually operated switch by which the conductors and no pole can be operated independently, a line valve, a block and any similar device used to block or isolate energy
- Push buttons, selector switches and other control circuit type devices are not isolating devices

Energy source - Any source of gas, electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy sources.

Guard - A physical barrier that prevents access to areas of the machine, equipment, or process where a hazard exists.

Hazardous Energy - Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy that could cause injury to personnel.

Hot tap - A procedure used in the repair, maintenance and service activities that involves welding on a piece of equipment (pipelines, vessels or tanks) under pressure, in order to install connections or other appurtenances.

Lockout - The placement of a lockout device on an energy isolating device in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout device - A device that utilizes a positive means, such as either a key or combination type lock, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds.

NOTE: *If an isolating device has a built-in locking mechanism, such as a Kirk-key lock, then it can be used as a locking device and it is not necessary to affix an additional padlock. A personal tag properly dated and signed must be attached to the built-in lock to indicate that work is being done on the circuit or equipment.*

Lock Box - The lockbox into which all keys from the lockout devices securing the machine or equipment are inserted and which would be secured by a lock and tag.

Normal Production Operation - The utilization of a machine or equipment to perform its intended operation.

Qualified Worker – An employee whom is familiar with the construction and operation of the equipment and the hazards involved. (ref: OSHA 29 CFR 1910.399)

NOTE 1: *Whether a worker is considered to be a "qualified worker" will depend upon various circumstances in the workplace. It is possible and, in fact, likely for an individual to be considered "qualified" with regard to certain equipment in the workplace, but "unqualified" as to other equipment. (See OSHA 29 CFR 1910.332.b.3 for training requirements that specifically apply to qualified workers.)*

***NOTE** 2: A worker who is undergoing on-the-job training and who, in the course of such training, has demonstrated an ability to perform duties safely at his or her level of training and who is under the direct supervision of a qualified worker is considered to be a qualified person for the performance of those duties.*

NOTE 3: *A qualified worker must be authorized by his or her supervisor to apply lock and tag.*

Risk Assessment - A comprehensive evaluation of the probability and the degree of the possible injury or damage to health in a hazardous situation in order to select the appropriate safeguards.

Safety Signs - A visual alerting device in the form of a sign, label, decal, placard, or other marking that advises the observer of the nature and degree of the potential hazard(s) that can cause injury or death.

Satellite Lock Box - A secondary lockbox or lockboxes to which each authorize worker affixes his or her personal lock or tag. It is normally used in a group lockout situation.

Servicing and/or maintenance - Workplace activities such as constructing, setting up, adjusting, inspecting, modifying and maintaining or servicing machines and equipment, where the employee may be exposed to an unexpected energization or startup of the equipment or release of a hazardous energy source.

Setting up - Any work performed to prepare a machine or equipment for performing its normal operation.

Tag out - The placement of a tag out device on an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tag out device is removed.

Tag out device - A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until tag out device is removed.

Tags – OSHA 29 CFR 1910 requires that tags are uniform across the site. We use the tags found in Appendix A

Working Near (live Parts) – Any activity inside a limited approach boundary. Limited approach boundary is referenced by NFPA 70E Article 100.

Working On (Live Parts) – Coming in contact with live parts with the hands, feet or other body parts, with tools, probes, or test equipment, regardless of the personal protective equipment the person is wearing.

NOTE: *"Working on or near exposed de-energized parts." Is discussed In OSHA 29 CFR 1910.333.b.1 and applies to work on exposed de-energized parts or near enough to them to expose the worker to any electrical hazard they present. Conductors and parts of electric equipment that have been de-energized but have not been locked out or tagged in accordance with paragraph (b) of this section shall be treated as energized parts, and paragraph (c) of this section applies to work on or near them. Also reference NFPA 70E Article 130 "Working on or Near Live Parts.*

Zero Energy State - The lowest achievable energy state; the de-energization of electrical energy sources that includes discharging capacitive and inductive elements (absence of voltage and current) and blocking or totally releasing mechanical energy (kinetic or potential).

4.0 KEY RESPONSIBILITIES

4.1. MANAGERS AND SUPERVISORS

Managers and supervisors are responsible for controlling and enforcing this procedure and to see that Hausmann Construction, Inc. employees and sub-contractors that are affected by lockout and tag out procedures have the knowledge and understanding required for safe application, usage, and removal of each energy control and device. In addition, managers and supervisors are to ensure employees are trained and comply with the requirements of this program.

4.2. EMPLOYEES

Employees who are affected by this program are required to attend training on an annual basis and are required to follow the provisions of this program. Training will be documented.

5.0 PROCEDURE

5.1. GENERAL

Only an authorized employee or employees performing the servicing or maintenance will perform lockout or tag out.

5.2. DEVICES

Lockout Device - If an energy source can be locked out a device that utilizes a lock to hold an energy isolating device in a safe position will be used. Each site will have the same type of lock as specified by Hausmann Construction, Inc.

Tag out Device – If an energy source cannot be locked out with a lockout device then a tag out device will be used. Tag out devices are a warning only level of protection and will be weather and chemical resistant, standardized in color with clear written warning of hazardous energy; i.e. Do Not Operate, Do Not Start, Do Not Energize, etc. Each site will have the same style of tags specified by Hausmann Construction, Inc.

5.3. SPECIFIC ENERGY CONTROL PROCEDURES

Each manager or supervisor is responsible for developing specific step-by-step shutdown and startup procedures for a particular machine or piece of equipment in their respective area.

- A written, step-by-step isolation procedure for shutdown and startup will be prepared for each type of machine or piece of equipment
- This procedure will include:
  - Equipment number if assigned
  - Equipment location
  - Energy Source(s) (i.e. electrical, hydraulic, gas pressure, etc.)
  - Location of isolating controls (i.e. breaker switches, valves, etc.)
  - Quantity of isolating controls
  - Quantity of locks required to isolate the equipment
  - Other hardware required to isolate the equipment (i.e. chains, valve covers, blocks, etc.)
  - List any residual energy required to be dissipated before work begins

5.4. SPECIFIC SEQUENCE FOR APPLICATION OF ENERGY CONTROL

1. Notification

Authorized employees must notify other affected employees of the application and removal of lockout and tag out devices. Written notification will be given before the controls are applied and before they are removed from the machine or equipment.

2. Preparation for Shutdown

Before an authorized or affected employee shuts down a machine or equipment, the authorized employee will have the knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the method or means (locks) to control the energy sources.

3. Machine or Equipment Shutdown

The machine or equipment will be shut down using the procedures established for that machine or piece of equipment. The shutdown will be orderly to avoid any addition hazards to employees as a result of the stoppage.

4. Machine or Equipment Isolation

Energy isolating devices that are needed to control the energy to the machine or equipment will be physically located and operated in such a manner as to isolate the machine or equipment from the energy source(s).

5. Lockout and Tag out Devices and Application

- Each authorized employee will have the proper number of locks and devices to be able to perform proper lockout and tag out procedures for machines or equipment that they may be working on.
- Lockout or tag out devices will be affixed to each energy isolating device by authorized employees.
- Each lockout and tag out devices will include the name of the individual placing the device.
- Lockout devices will be affixed in a manner to hold the energy isolating devices in a safe, de-energizerd or off position.
- Tag out devices will be affixed in a manner that will clearly indicate that the operation or movement of isolating devices from the safe or off position
- Tag out devices used with energy isolating devices with the capability of being locked out will be fastened at the same point at which the lock would have been attached. If a tag cannot be directly attached to the energy isolation device it will be located as close as safely as possible to the device in a position that will be immediately obvious to anyone attempting to operate the device.
- Each energy source will be locked out completely isolating the equipment.

- Isolating machines or equipment will include, but are not limited to:
  - Pumps, compressors, generators, electric distribution, storage tanks, etc.
  - Each type of equipment to be isolated will have specific procedures for isolation, i.e. for compressors: suction, discharge, power, starting, fuel, dumps will be closed, locked and tagged out properly. The blow-down valve will be opened, locked and tagged out properly. (NOTE): If compressor has a side stream hooked up, the side stream will be closed, locked and tagged out properly.

6. Stored Energy and the Possibility of Re-accumulation

Following the application of lockout or tag out devices to energy isolating devices, each potentially hazardous stored or residual energy will be relieved, disconnected, restrained and rendered safe.

IF THERE IS A POSSIBILITY OF RE-ACCUMULATION OF STORED ENERGY, VERIFICATION OF ISOLATION will be continued until the servicing or maintenance operation is completed, or until the possibility of such accumulation no longer exists.

7. Verification of Isolation

The authorized employees performing the lockout procedure verifies and ensures that the equipment is isolated or disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the machine or equipment by operating the control(s) or by testing to make certain the equipment will not operate.

5.5. MULTIPLE WORKERS

A crew of authorized employees may use a group lockout or tag out device. This will afford the group of employees a level of protection equal to that provided by a personal lockout or tag out device.

- A tailgate meeting will be conducted to review the lockout procedures and other information as required for safe work to continue and all crafts and affected departments will be involved
- A qualified and authorized employee will isolate the equipment and ascertain the exposure status of individual group members
- Workers will then place their individual locks on the device's group lockout or tag out device after they have verified the procedure. In situations where not all locks can be placed on the equipment lock out device a lock box may be utilized.
- In the event a lock box is used. A qualified employee will install the lock out device and tag on the machine. The employee will place the key into a lock box and affix his personal lock to the box. All remaining employees will affix their lock to the box.

The crew leader or an assigned authorized employee will be responsible of assuring the continuity of the lockout procedures including documenting lockout information passed along during a shift or personnel changes

5.6. RELEASE FROM LOCKOUT AND TAGOUT

When servicing or maintenance is completed or when Lockout / Tag out devices must be temporarily removed, the equipment requires testing and the machine or equipment is ready for testing or to return to normal operating conditions, the following steps will be taken, in this order:

- Check the machine or equipment and the immediate area surrounding the machine or equipment to ensure that nonessential items such as tools have been removed and that the machine or equipment components are operationally intact
- Check the work area to ensure that personnel have been safely positioned or removed from the area *(Notification 5.4.1)*
- Remove the Lockout and Tag out device
- Energize and proceed with testing
- De-energize and reapply control methods including Lockout and Tag out devices
- Document the procedure by use of the completed isolation log and provide to supervisor for filing

5.7. REMOVAL OF LOCKS

The authorized employee who applied the lock will be the one to remove their lock. However, after work has been completed, certain conditions may arise which prohibit this person from being present to remove the lock.

The following procedures will be followed to allow for the removal of a lock that another person has applied:

- Every effort will be made to contact the authorized employee who applied the lock to obtain the key(s).
- If the key(s) cannot be made available, the employee who requests removal of the lock will contact their supervisor.
- The supervisor will verify that, to the fullest extent possible, that every effort was made to contact the original authorized employee who applied the lock and to obtain the key(s).
- The employee removing the lock will note on the Service Report that the lock(s) were removed with permission by supervisor. Documentation may be provided by filling out Appendix D, Alternative Authorization for Removal of Locks or Tags.
- Every reasonable efforts will be made by supervisor to notify that employee their lock has been removed, ensuring that the authorized employee has this knowledge before they return to work.
- If the equipment is client owned, the supervisor or employee requesting to remove

the lock(s) will contact the client to get the lock removed. Clients must remove their lock(s).

- Hausmann Construction, Inc. employees will not remove any client locks.

5.8. SHIFT OR PERSONNEL CHANGES

In the event that shift or personnel changes occur during maintenance or repair activities, the designated Hausmann Construction employee in charge will take the necessary steps to maintain the continuity of the lockout and tag out protection. This includes maintaining that provisions in this procedure are adhered to and the transfer of lockout and tag out devices between authorized employees is accomplished.

5.9. CONTRACTORS

Subcontractors performing lockout procedures on Hausmann Construction property or projects will comply with this procedure. Subcontractors will supply their own locks.

5.10. ANNUAL AUDITS

Each year the manager or supervisor, or his/her representative, will perform an inspection of the Lockout Program in their respective areas to verify the effectiveness of the program. An authorized employee other than the one(s) utilizing the energy control procedure being inspected will perform the audit and will verify that:

- Each authorized and/or affected employee has been trained as required.
- Any new equipment added has specific lockout procedures developed and documented.
- Current procedures are adequate for performing complete isolation of equipment and resulting in a zero energy state.
- The annual audit will be certified in writing and a copy of the audit maintained on file.

6.0 TRAINING

Hausmann Construction, Inc. will provide training to ensure that the purpose and function of the energy control program are understood by authorized employees and that the knowledge and skills required for the safe application, usage, and removal of the energy controls are acquired by employees. The training will include the following:

- The recognition of applicable hazardous energy (lockout and tag out) sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.
- The purpose and use of energy control procedures
- When tag out systems are used, employees will also be trained in the following limitations of tags:

- Tags are essentially warning devices affixed to energy isolating devices, and do not provide the physical restraint on those devices that is provided by a lock
- When a tag is attached to an energy isolating means, it is not to be removed without authorization of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated.
- Tags must be readable and understandable by authorized employees, affected employees, and other employees whose work operations may in the area, to be effective.
- Tags and their means of attachment must be made of materials which will withstand the environmental conditions met in the workplace.
- Tags must be securely attached to energy isolating devices so they cannot be unintentionally or accidentally detached during use.
- Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program.

Other employees, whose work operations may in an area where energy control procedures may be used, will be trained about the procedure, and about the prohibition about attempts to restart or reenergize machines or equipment which are locked out or tagged out.

6.1 RETRAINING

Retraining will be conducted whenever a periodic inspection reveals, or whenever Hausmann Construction, Inc. has reason to believe there are deviations from or inadequacies in the employee's knowledge or use of the energy control procedures.

Retraining is also needed when there is a change in job assignments, in machines, a change in the energy control procedures or a new hazard is introduced.

The retraining will reestablish employee competence and introduce new or revised control methods and procedures, as necessary.

6.2 TRAINING DOCUMENTATION

Hausmann Construction, Inc. will certify that employee training has been carried out and is being kept up-to-date. Training or retraining must be documented, signed and certified.

SPECIFIC EQUIPMENT LOCKOUT PROCEDURES

Department_____

Equipment
No._____

Energy Source_____

Procedure for Shutdown and Isolation:

(List number of steps needed to isolate machine or equipment - write N/A on lines not used or add more steps if necessary)

STEP

1._____

2._____
3._____
4._____
5._____
6._____
7._____
8._____
9._____
10._____

Additional Information:

Prepared By: _____

Date: _____

(This procedure to be communicated to authorized and affected employees and kept on file at location of machine or equipment)

SAMPLE TAG

WARNING

MINIMUM LOCK/OUT – TAG/OUT PROCEDURES

Inlet Suction Block Valve Discharge Block Valve

Fuel Gas Valve Start Gas Valve

Liquid Dump Line Blow Down (Lock Open)

When working on this compressor package the following items must be LOCKED OUT & TAGGED OUT. Residual pressure must be blown down. Open valves on surge bottles and piping to relieve any pressure that may be trapped.

Side Stream (For Units Set up with Side Streams)

When working on the compressor each person must lock and tag the compressor package!

ISOLATION LOG

Date of Isolation:

Description of Work:

List of Equipment out of Service:

Necessary Requirements of Clear Isolation:

Authorized Employee Signature: _____

Person Continuing Work Signature: _____

Locks/Tags for GROUP LOCKOUT or Multiple Locks/Tags

Lock # or Tag	Date Installed	Date Removed	Print Name (for Group Lockout)	Signature

(If additional space is needed, please attach an additional page)

ANNUAL AUDIT OF THE CONTROL OF HAZARDOUS ENERGY PROGRAM

I certify that an audit of the Hausmann Construction Inc. "Control of Hazardous Energy" Program was conducted and that each employee has been trained in the recognition and procedures to lockout equipment they may be required to work on or may be affected by.

I further acknowledge that the current procedure is adequate to safely lockout equipment in this department for servicing and maintenance.

Department: _____

Manager (or representative): _____

Date: _____

Original to file: _____

12.00 HAZCOM PROGRAM

1.0 OBJECTIVE

The hazard communication program has been set up to properly inform Hausmann Construction, Inc. and its subcontractor employees of the hazards associated chemical substances used and stored in the workplace.

2.0 PURPOSE

The purpose of this program is to ensure the hazards of all chemicals and substances are evaluated and the information about their hazards is communicated to employees, including emergency response organizations, state and federal agencies, other employers and contractors, as necessary. This hazard information will be communicated, and displayed under this hazard communication program.

Hausmann Construction, Inc. is firmly committed to providing each of its employees a safe and healthy work environment. It is recognized that workers may use chemicals or substances that have potentially hazardous properties.

When using these substances, workers must be aware of the identity, toxicity or hazardous properties of a chemical or substance, since an informed employee is more likely to be a safe employee. To this end, Hausmann Construction, Inc. has set up a written hazard communication program.

3.0 SCOPE

This program is applicable to all Hausmann Construction, Inc. employees who may be exposed to hazardous chemicals. This document covers Hausmann Construction, Inc. employees and subcontractors and will be used on all projects, unless a more restrictive program is required by contract.

4.0 DEFINITIONS

- **Chemical** – any element, chemical compound, or mixture of elements or compounds
- **Chemical Inventory List** – a list of chemicals used at a jobsite location, or by personnel that report that jobsite
- **Electronic Access** – using electronic media (telephone, fax, Internet, etc.) to gain Safety Data Sheet (SDS) or health information
- **GHS** – Global Harmonized Systems
- **Hazardous Chemical** – any chemical that is a physical hazard, a health hazard, or has a Permissible Exposure Limit established for it
- **Hazardous Substance** – see Hazardous Chemical

- **Hazard Communication Program Coordinator** – the person who has overall responsibility at a jobsite for that jobsite's hazard communication program
- **Health Hazard** – a substance for which there is statistically significant evidence based on at least one study conducted by proved scientific principles that acute or chronic adverse health effects may occur in exposed employees
- **IDLH** – immediately dangerous to life and health
- **Immediate Use** – the chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred
- **Jobsite** – an establishment at one geographical location containing one or more work areas where hazardous chemicals are stored and/or used and employees are present for the purpose of Hausmann Construction, Inc. business
- **National Fire Protection Association Labeling (NFPA)** – a common industry labeling method developed by the National Fire Protection Association to identify the hazards associated with a particular chemical
- **Permissible Exposure Limit (PEL)** – the maximum eight-hour time weighted average of any airborne contaminant to which an employee may be exposed
- **Pictograms** – a graphical composition that may include a symbol plus other graphic elements, such as a border, background pattern or color that is intended to convey specific information
- **Readily Available** – when an employee has access during his or her normal work shift
- **Safety Data Sheet (SDS)** – a written or printed document containing chemical hazard and safe handling information, prepared in accordance with the OSHA Occupational Safety & Health Standards, Section 1910.1200, paragraph (g)
- **Substance** – see Chemical
- **Threshold Limit Value (TLV**) – the airborne concentration of a substance that represents conditions under which it is believed that nearly all normal workers may be repeatedly exposed day after day without adverse effect
- **Work Area** – a room or defined space on a jobsite where hazardous chemicals are stored or used and where one or more employees are present
- **Workplace** – see Jobsite
- **Workplace Chemical List** – see Chemical Inventory List

5.0 KEY RESPONSIBILITIES

A written hazard communication program will be developed, carried out and upheld at each Hausmann Construction, Inc. workplace. The program will describe how labels, other forms of warning and SDS's will be communicated to employees.

The safety director or designated safety representative is responsible for developing and implementing the hazard communications program. Managers are responsible for maintaining SDS's and the chemical inventory list for their locations. The safety director or designated safety representative will review the SDS files and chemical inventory list at each location at least annually to ensure that they are complete and up-to-date.

Employees are responsible for following the needs in the hazard communication program, to use proper personal protective equipment, to report containers without labels immediately and to not deface any label.

Any employee who transfers any material from one container to another is responsible for labeling the new container with all required information.

Employees are responsible for learning the requirements of this section and for applying them to their daily work routine.

6.0 PROCEDURE

6.1 INTRODUCTION

This hazard communication program was prepared for use by Hausmann Construction, Inc. to explain how Hausmann Construction, Inc. meets the requirements of the federal Occupational Safety and Health Administration's Hazard Communication Standard (29 CFR 1910.1200).

It spells out how Hausmann Construction, Inc. will inventory chemicals stored and used, gain and use SDS's, preserve labels on chemical substances, and train employees about the hazards of chemicals they are likely to encounter on-the-job.

Preparation of this program shows our continuing commitment to safety among our employees in all of our locations.

- Each jobsite is expected to follow this program and maintain its work areas under these requirements
- Employees, their appointed representatives, and government officials must be provided copies of this program on request
- Besides the program, other information needed as part of our hazard communication effort is available to workers on request
- Asking to see this information is an employee's right

- Using this information is part of our shared commitment to a safe, healthy workplace

6.2 LIST OF HAZARDOUS CHEMICALS

Hausmann Construction, Inc. keeps a listing of all known hazardous chemicals known to be present on the jobsite by using the identity that is referenced on the safety data sheet (SDS). This identity is often a common name, such as the product or trade name (i.e., Windex).

The chemical inventory list is updated as necessary and at least annually by the hazard communication program coordinator or their designee.

The jobsite chemical inventory list must be available for review on request.

6.3 SAFETY DATA SHEETS

Chemical manufacturers are responsible for developing SDS's. Hausmann Construction, Inc. will have an SDS for each chemical used except of consumer products.

SDS's, for chemicals used on the jobsite or by personnel reporting to the jobsite, will be kept, readily accessible in each work area and be made available, on request, to employees, their appointed representatives and regulatory officials under the requirements of 29 CFR 1910.1020(e).

SDS's are filed alphabetically, by material classification, in the SDS book. A chemical inventory list is provided in the front of the SDS book, listing all SDS's contained in it. This inventory serves as the index of the SDS book. The SDS book will be displayed in a prominent location in the work area where it is accessible to all employees.

A copy of an SDS request form is found in the first section of the SDS book and at the end of this procedure. An employee may use a copy of this form to request an SDS or they may ask the manager for one. In either case the sought SDS must be given to the employee within 24 hours.

SDS's must be gained for each required chemical from the chemical manufacturer, supplier or vendor. To purchase any potentially hazardous chemical products from any supplier that does not provide an appropriate SDS in a timely fashion is restricted.

Each SDS must be kept in the SDS library for as long as the chemical is used by the jobsite.

SDS access (Hard Copy, telephone, fax, Internet, etc.) may be used to acquire and maintain SDS libraries and archives. Hausmann Construction, Inc. currently utilizes an online system.

The manager is responsible for seeing that the chemical inventory list inventory is maintained, is current and is complete. They will review the inventory and the SDS book at least annually. When a hazardous material has been permanently removed

from the work place, its SDS is to be removed from the SDS book and the chemical inventory list. A file copy is to be maintained in a "dead file".

SDS's for hazardous materials to which Hausmann Construction, Inc. employees have been exposed must be maintained after the employee leaves the employment of Hausmann Construction Inc. Before any non-routine task is performed, employees will be advised of special precautions and the hazards associated with chemicals contained in unlabeled pipes in their work areas, if present. In the unlikely event that such tasks are required, the manager will provide SDS's for involved chemicals. Employees have the right to request a SDS on any chemical and it must be provided without any issues.

6.4 LABELS, LABELING AND WARNINGS:

The Manager will ensure that all hazardous chemicals used or stored in the facility are properly labeled.

- Damaged labels or labels with incomplete information will be reported immediately
- Damaged labels on incoming containers of chemicals will not be removed
- New labels will be provided as needed so that all containers are properly labeled
- Only containers into which an employee transfers a chemical for their own immediate use will not require labeling
- Employees who are unsure of the contents of any container, vessel or piping must contact their supervisor for information regarding the substance including:
    - The name of the substance
    - The hazards related to the substance
    - The safety precautions required for working with the substance

Labels, tags or markings on containers will list as a minimum:

- Words, pictures, symbols or combinations thereof may be used
- The trade name of the product as listed on the SDS
- Appropriate hazard warnings to help employees protect themselves from the hazards of the substance
- Labels provided by chemical manufacturers, distributors, and importers must also list the name and address of the manufacturer, importer, or vendor responsible for the chemical, and from whom more information about the chemical can be obtained

- Labels will be legible, in English. However, for non-English speaking employees, information will be presented in their language as well

- Hausmann Construction, Inc. employees or subcontractors will not remove or deface labels on incoming containers of hazardous chemicals

All containers must be labeled. When an employee transfers the contents of one container to another, they must label the new container with all needed information. This information can be gained from labeling the original container or from the material's SDS. Any container of a potentially hazardous material that will not be emptied during one shift must be labeled, without exception.

7.0 TRAINING

Hausmann Construction, Inc. will provide employees and new hires effective information and training on hazardous chemicals in their work area.

Added training will be provided whenever a new chemical hazard is introduced into the work area. To reinforce the importance of handling chemicals properly when performing new or non-routine tasks, supervisors will conduct extra training as needed.

Formal training will be conducted by jobsite supervisors or individuals who are knowledgeable in the hazard communication program.

The manager will ensure records of employee training are kept.

When an outside contractor, such as a pest control worker, enters a Hausmann Construction, Inc. site to perform a service for the company, they must first present the SDS's for any hazardous chemicals they will use.

These SDS’s will be treated as above with the same training needs.

The manager will be responsible for contacting each contractor before work is started to gather and spread any information about chemical hazards the contractor is bringing into the workplace.

The hazard communication program documented training will, as a minimum, include:

- Requirements, details and rights of the employee as contained in the hazard communication regulation

- Operations and work areas where hazardous chemicals are present will be identified in the Job Hazard Analysis/Work Plan

- Location of the written hazard communication program, SDS’s and the chemical inventory list

- How to access SDS information

- How to read and an explanation of labels and SDS for relevant hazard information and how employees can gain and use the correct hazard information
- Methods and observations that may be used to detect the presence or release of hazardous chemicals by use of monitoring devices, visual appearance or odor
- The physical and health hazards of chemicals in the work area
- Protection measures to be used to prevent exposure
- Proper work practices
- Emergency procedures
- Proper PPE to be used

8.0 MULTI-EMPLOYER JOB SITES AND MULTI-WORK SITE

8.1 MULTI-WORK SITES

Where employees must travel between workplaces during a work shift, the written HAZCOM Program will be kept at a primary job site. If there is no primary job site, then the program will be sent with employees.

The program will be made available, on request, under requirements of 29 CFR 1910.1020(e).

8.2 MULTI-EMPLOYER JOB SITES

A pre-job briefing will be conducted with the contractor before the beginning of work on the site.

- During this pre-job briefing, contractors will tell Hausmann Construction, Inc. and present current copies of SDS's and label information for hazardous substances bought on-site
- Hausmann Construction, Inc. will notify and provide SDS' and label information for all hazardous materials the contractor may face on the job
- The jobsite labeling system and any precautionary measures to be taken by contractor during normal conditions and emergencies will be addressed
- By providing such information to other employers, Hausmann Construction, Inc. does not assume any obligations that other employers have for the safety of their employees
- Other employers working on Hausmann Construction, Inc. property or for Hausmann Construction, Inc. on a client's property remain fully responsible for developing and implementing their own compliant hazard communication programs. Contractors may be required to adopt and adhere by Hausmann

Construction, Inc. safety procedures if their own programs do not meet Hausmann Construction, Inc. expectations.

9.0 HAZARD WARNINGS / HAZCOM 2012 PICTOGRAMS (GHS)

The HazCom 2012 (GHS) Pictograms are a means of disseminating hazard warnings and information for a material. The pictograms are divided into three categories. (Figure 1)

9.1 PHYSICAL HAZARDS

Flammable: Flammable materials burn at room temperature, or below. Flammable gases, when mixed with the proper amount of oxygen (usually from the air), will burn when ignited. Flammable liquids and solids give off enough vapors to burn when ignited.

Explosive: Explosive materials give off sudden, almost instantaneous volumes of gas when subjected to pressure, shock or heat.

Pyrophoric: Pyrophoric materials burn on contact with air.

Oxidizer: Oxidizers are materials which supply oxygen or otherwise help or cause other materials to burn.

Unstable: Unstable materials undergo changes, which can be hazardous under normal storage, use or transportation conditions.

Radioactive: Radioactive materials undergo spontaneous nuclear disintegration, which results in the release of particles or photons, which can ionize other materials.

9.2 HEALTH HAZARDS

Toxic or Highly Toxic: Almost all materials can be hazardous under the wrong conditions. Usually, the degree of hazard depends on the dose. Even a substance as necessary to life as water can be hazardous when too much is taken in: kidney overload can result in death. Small amount of most materials may cause mild symptoms then disappear once the person is removed from the exposure. Still, larger doses can cause more severe illnesses, with some permanent injury or even death. Each person responds differently to hazardous materials. OSHA standards limit doses of industrial materials to levels, which will cause no permanent harm over a working lifetime in the average person. OSHA's definition of "toxic" and "highly toxic" applies to materials much more hazardous than the average industrial chemical. In this program, we will use the more common, broader definition of toxic: any material, which can cause illness or injury.

Sensitizer: Sensitizers cause changes in the body's defense system that harm when the individual is exposed to even trace amounts of the material at a later time.

Corrosive or Irritant: These materials cause injury or irritation when they come in contact with eyes, skin or the mucous membranes. Acid (in high concentration) eats away skin. At low concentrations, acids may only cause a slight reaction, which goes away without treatment.

Target Organ Toxins: These materials damage one or more particular organ or body systems after exposure. These exposures can cause cumulative damage over time at low concentrations.

Carcinogens, Teratogens, Mutagens and Reproductive Hazards: These materials cause changes in the body's genetic material. Carcinogens cause changes leading to cancer. Mutagens cause similar changes, which do not lead to cancer. Teratogens can cause birth defects and miscarriages. Reproductive hazards can cause a variety of reproductive effects ranging from infertility to miscarriages. Genetic material is not affected.

9.3 ENVIRONMENTAL HAZARDS

Acute Aquatic Toxicity: Acute aquatic toxicity means the intrinsic property of a material to cause injury to an aquatic organism in a short-term exposure.

Chronic Aquatic Toxicity: Chronic aquatic toxicity means the potential or actual properties of a material to cause adverse effects to aquatic organisms during exposures that are determined in relation to the lifecycle of the organism.

Figure 1: Pictograms and Hazards

Health Hazard  • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity	**Flame**  • Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides	**Exclamation Mark**  • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non-Mandatory)
Gas Cylinder  • Gases Under Pressure	**Corrosion**  • Skin Corrosion/ Burns • Eye Damage • Corrosive to Metals	**Exploding Bomb**  • Explosives • Self-Reactives • Organic Peroxides
Flame Over Circle  • Oxidizers	**Environment** (Non-Mandatory)  • Aquatic Toxicity	**Skull and Crossbones**  • Acute Toxicity (fatal or toxic)

SDS Request Form

To:

Re: Safety Data Sheets

Per the requirements of OSHA's "Right to Know" law, employers are required to provide employees access to safety data sheets, for each hazardous substance they may encounter. Because you are the manufacturer/supplier of *[insert product/chemical name]* we request that you provide the appropriate safety data sheet for your product as soon as possible.

Please direct your information to:

Hausmann Construction, Inc.
[Insert forwarding Information]

Thank you for your cooperation.

Regards,

*[Insert Signature]*_____

[Insert name & contact info]
Hausmann Construction, Inc.

cc: Job File

13.00 HEARING CONSERVATION (NOISE)

1.0 PURPOSE

The purpose of this program is to provide a process to minimize employee hearing loss caused by excessive occupational exposure to noise.

2.0 SCOPE

This program is applicable to employees who may be exposed to noise over 85 decibels (dB) for the 8-Hour time weighted average (TWA) of 85 decibels. This document covers Hausmann Construction, Inc. employees and subcontractors and will be used on all projects, unless a more restrictive program is required by contract.

3.0 KEY RESPONSIBILITIES

3.1 MANAGERS AND SUPERVISORS

- Ensure needs of this program are set up and maintained
- Ensure employees are trained and comply with the needs of this program

3.2 EMPLOYEES

- Wear hearing protection when needed, attend the training, and cooperate with testing and sampling

4.0 PROCEDURE

Occupational hearing loss is a cumulative result of repeated or continued absorption of sound energy by the ear; employee protection is based on decreasing the noise level at the ear or limiting the employee's exposure time. Hausmann Construction, Inc. will offer hearing protection to employees exposed to potential high noise levels in working areas and to those employees requesting hearing protection.

Employees who work in areas where the exposure to noise levels are 85 decibels or greater for the 8-hour time-weighted average of 85 decibels, must wear hearing protection and Hausmann Construction, Inc. will use a monitoring program as necessary to identify hear protection requirements.

Loud and percussive noise may necessitate the use of hearing protection to minimize loss. In many cases, sound pressure levels exceeding 120db may not exceed a time-weighted average but can cause hearing damage. As a precaution, tasks and operations that exceed this threshold when operating or working within the vicinity of the equipment may require hearing protection. Please refer to the job hazard analysis of the job and or task you are conducting.

4.1 Sampling

Reading will be conducted by a qualified employee or third-party as needed.

Hausmann Construction, Inc. will notify each employee, if their job is exposed to noise 85 decibels or greater.

The adequacy of hearing PPE will be reevaluated whenever noise exposures increase to the point that the PPE provided may no longer provide adequate protection. Hausmann Construction will then provide more effective PPE where necessary.

4.2 SIGNAGE

Clearly worded signs will be posted at entrances to, or on the periphery of, areas where employees may be exposed to noise levels in excess of 85 decibels. These signs will describe the hazards involved and the required protective actions.

4.3 HEARING PROTECTION DEVICES

Earmuffs and earplugs will be available to employees in sizes and configurations that will be comfortable to the employee. These hearing protection devices will be available to employees exposed to an 8-hour time-weighted average of 85 db or greater at no cost to employees. Hearing protectors will be replaced as necessary. Employees will be instructed how to obtain the proper fit. Employees will be given the opportunity to select their hearing protectors from a variety of suitable hearing protectors provided by Hausmann Construction, Inc.

5.0 TRAINING

Noise awareness training will occur for employees before their initial assignment and on an annual basis.

A training program will be set up to tell employees who are exposed to a noise action level or work in high noise levels, yearly, of the effect of noise on hearing; the purpose of hearing protectors, including the advantages, disadvantages and alternatives of various types, including instructions on selection, fitting, use and care and the purpose of audiometric testing and an explanation of test procedures.

Training will be updated to be consistent with changes in the work process, PPE needs and the proper techniques of wearing hearing protection.

All staff will have a copy of this program at the worksite and available to employees, their representatives and regulatory agencies.

The training must be documented.

14.00 HEAVY EQUIPMENT SAFETY

1.0 OBJECTIVE

The objective of this procedure is to prevent incidents involving heavy construction equipment used for earthmoving, demolition, and land clearing.

2.0 PURPOSE

This procedure sets up criteria for preventing incidents when employees are working with or around heavy construction equipment.

3.0 APPLICATION

This procedure covers the use of earthmoving, demolition, and land-clearing equipment such as bulldozers, scrappers, off-road dump trucks, excavators, front-end loaders, skid-steer loaders, rollers, compactors, motor graders, and any other self-propelled construction equipment.

4.0 JOB SITE SETUP

4.1 Heavy equipment selection will be based on the size of the work site, the terrain, and weather, and on the scope of work to be performed.

4.2 A heavy equipment staging area will be provided for the safe entry of the equipment and as a place to carry out routine maintenance and servicing. The staging area will be located away from overhead utilities, pedestrian traffic, and vehicle parking areas. The staging area will be on level ground that must be capable of supporting the impact imposed by heavy equipment.

4.3 The general work area will be arranged to lessen the backing up of heavy equipment.

4.4 Access and haul roads will be designed, built, and kept to safely allow moving the vehicles and equipment involved. Haul roads will be built to widths suitable for safe operation of the equipment at the travel speed necessary. The maximum allowable grade will be limited to 10%.

The design of access and haul roads will be in writing and will address the following:

- Equipment use, traffic density, and hours of operation
- Road layout and widths, horizontal and vertical curve data, and sight distances
- Sign and signal person needs, road marking, and traffic control devices
- Drainage control

- Points of contact between vehicles and the public, and safety controls at these point of contacts
- Maintenance needs, including roadway hardness and smoothness and dust control

5.0 EQUIPMENT SAFETY FEATURES

5.1 Self-propelled construction equipment will be equipped with the following safety features:

- Rollover protective structures (ROPS) meeting Society of Automotive Engineers (SAE) needs
- Seat belts
- Multipurpose dry chemical fire extinguisher rated not less than 2A:10B:C
- Backup alarm or spotter used when view is obstructed.
- Operator's manual
- Horn
- Lights
- Other warning devices (strobe lights, reflective signage, etc..)

5.2 Besides safety features, equipment used for demolition and land clearing will be equipped with falling object protective structures (FOPS) meeting SAE requirements. Land-clearing equipment must be equipped with a canopy structure made from ¼-inch woven wire mesh with no openings greater 1 inch.

5.3 Equipment attachments will be approved by the manufacture whose equipment the attachment will be use on.

6.0 MOBILIZATION and DEMOBILIZATION

6.1 Before heavy equipment is transported on a flatbed trailer, a specific route will be planned. Clearances of bridges, railroad crossings, and other obstacles will be checked, and acceptable allowances made for overhang booms. Congested areas will be avoided. Oversized loads must conform to state standards, which usually require special permits.

6.2 The worker who drives the equipment onto the truck or trailer will be thoroughly familiar with the equipment. The ramp and truck or tractor-trailer must be satisfactory to carry the load. Side loading of equipment onto a trailer is strictly restricted.

6.3 Chock blocks must be placed in front of the truck's wheels so it cannot move during loading. Both the bed of the truck or trailer and the wheels or tracks of the equipment will be cleaned of clay, soil, oil, and grease, which might cause the equipment or worker to slip.

6.4 Workers other than the operator driving the equipment on or off the truck or trailer will stay a safe distance away from the loading and unloading operations.

6.5 The operator's manual will be consulted to decide the direction in which the machine is mostly safely loaded onto the truck or trailer.

6.6 When the equipment is properly put on the trailer, the following measures will be taken to secure the equipment:

- Lower buckets, blades, and booms to the trailer bed
- Shift into park or low gear. Set the parking brake
- Turn off the engine and remove the key
- Secure the equipment to truck or trailer with rated chains and tighten with ratchet binders. Tie-down points recommended by the manufacturer will be used. "Cheaters" on ratchet binders will not be used under any circumstances
- Carefully tighten chains so they are not in contact with hoses, hydraulic cylinders, rods, or tires

6.7 Equipment will never be transported, even over short distances, unless it is properly secured.

7.0 INSPECTION PROCEDURES

7.1 Equipment will be inspected at the following times:

- Delivery
- Post-assembly
- Before each shift (walk-around, pre-ignition, and post-ignition checks)
- Inspections will be documented and filed on the project

7.2 A qualified mechanic or an operator who is knowledgeable about the equipment will inspect the equipment to make sure that it is in safe working condition. Inspections and tests will be conducted under the manufacturer's recommendations, and a written record of the inspections will be kept on the equipment or in a project file. A daily heavy equipment inspection report will be completed on Hausmann Construction, Inc. heavy equipment inspection forms.

7.3 When deficiencies that affect the operation of equipment are found, the equipment will be immediately taken out of service until unsafe conditions are corrected. A "DO NOT OPERATE" tag indicating that the equipment is not to be operated will be placed on the operator controls of the equipment. When required or necessary, lockout procedures will be used. When corrections are made, the equipment will be re-tested for safe use before being returned to service.

7.4 Consideration will be given to the following items in the performance of equipment inspections.

- Missing nuts, bolts, pins, loose fittings and couplings, cracked paint, frayed cables and hoses, evidence of fluid leakage on equipment or ground, and loose tracks and pads.
- Fluid levels in the battery, hydraulic system, brake system, and cooling systems; engine oil; and fuel supply. CAUTION: Never use your hands to check for hydraulic leaks. An open flame will not be used to check fluid levels or look for leaks.
- Condition of glass in cab-clean and not broken, gauges checked for proper function, and reading, test of brakes lights, horn, backup alarm, steering and other controls

8.0 RESPONSIBILITIES

8.1 SUPERVISORY PERSONNEL

Supervisory personnel and/or the health and safety managers have the following responsibilities:

- Carry out and enforce the rules of this program
- Verify that equipment operators are competent and qualified to run equipment in a safe and efficient manner
- Provide instruction to operators and ground laborers to prevent the instance of heavy equipment incidents

8.2 EQUIPMENT OPERATORS

The equipment operator will be responsible for the safe operation of the equipment. The operator must know how many ground personnel are working around the equipment and their locations. The operator will be familiar with the blind spots on the equipment and will avoid making turns towards the blind spots. In addition, the equipment operators will;

- Read and heed directions and instructions in the operator's manual
- Know the access and haul road routes and obey posted speed limits and directional signs
- Yield the right-of-way to ground personnel, motor vehicles, and emergency vehicles
- Be responsible for the daily inspection of their machines
- Not leave equipment unattended unless the engine has been shut down and the parking procedures followed (see paragraph 10.4)
- Use seat belts and other safety devices. Safety devices will not be bypassed or changed
- Always look in the direction of travel

- Wear a hardhat, safety glasses and high visibility clothing while operating the equipment. Class 2 reflective clothing maybe required if condition warrant or at superintendent's desecration
- Start and run the equipment controls only from the operator's compartment
- Do not allow any rides on or in the equipment or lift workers with a boom, bucket, or other unapproved attachment. Rides are permitted only in the cab and only if the cab has a passenger's seat with a seat belt
- Maintain 3 points of contact with the steps and handholds when mounting and dismounting the equipment. Never use the steering wheel or controls as handholds
- Not wear personal stereo headsets when operating equipment
- Secure in the cab personal belongings such as lunchboxes and water jugs. The operator may keep a few personal belongings in the cab, but it is hazardous to the operator's safety to have too many items stored in the cab
- Stop the equipment when they cannot see ground personal such as grade checkers, laborers, and signalpersons working in the area
- Keep body parts out of rotating parts, power take offs, (PTOs) and pinch points

8.3 GROUND LABOR

The responsibilities of ground labor when they are working around heavy equipment are as follows:

- Know the location of the equipment's blind spots and stay out of them. (On excavators and scrapers, the blind spot is to the operator's right.)
- Keep visual contact with the operator always. (As a rule of thumb, if you cannot see the operator, the operator cannot see you.)
- Do not use personal stereo headsets when working around heavy equipment
- Wear hardhats, eye protection, and Class II reflective safety vests when working around equipment
- Do not store tools, personal clothing, water jugs, or lunchboxes on or in heavy working equipment
- Do not ride in or on buckets, booms, other unapproved attachments, or fenders, or in the cab of running equipment unless the cab is equipped with a passenger seat and seat belt
- Stay clear of pinch points and the boom swing radius of excavating machines
- Do not work under suspended loads

9.0 MAINTENANCE AND REPAIRS

9.1 Equipment is to be shut down before fueling and while repairs or manual greasing is performed except when equipment is designed to be running during service.

9.2 Maintenance will be performed in a location that protects the worker from traffic, site activities, and area hazards.

9.3 Before repairs are made on heavy equipment, the mechanic will make certain that the equipment is shut down and secured so that any system that could create a hazard cannot be activated without the approval of the mechanic. A "DO NOT OPERATE" tag will be placed on the controls or the controls will be locked out.

9.4 Parts that are suspended or held apart by slings, hoists, hydraulics, or jacks must also be blocked, fully lowered, or cribbed before personnel are allowed to work underneath or between them.

9.5 When maintenance activities involve scraper bowls, bulldozer blades, buckets, dump bodies, or any other such component, the pinch point will be blocked or secured to prevent unintentional movement. The blocks or equivalent retaining device must be able to support the weight of components.

9.6 During the charging or jump-starting of a battery, cell caps will be removed and the opening covered with a damp rag. The jumper cables will be connected in the following sequence:

1. The positive cable is attached to the positive terminal of the dead battery.
2. The other clamp of the positive cable is attached to the positive terminal of the good battery.
3. The negative cable is attached to the negative terminal of the dead battery.
4. The other clamp of the negative cable is attached to the engine block or the frame of the vehicle with the good battery.

To prevent explosions, flashlights will be used to check electrolyte levels. Workers must attach the cables firmly so that sparking does not occur. Workers charging or jump-starting a battery will wear eye and face protection and will stand clear of the battery.

9.7 To check the pressure of tires or to inflate them, a clip-on chuck equipped with an inline valve with a gauge or pressure regulator preset to the desired pressure will be used. The chuck will have a hose long enough to allow the worker to stand clear while the tire is being checked or inflated.

9.8 A trained tire mechanic will perform servicing of multi piece rim wheels in accordance with 29 CFR 1910.177. A safety tire rack, cage, or equivalent protection will be provided and used when the mechanic is inflating, mounting, or dismounting tires installed on split rims or rims equipped with locking rings or similar devices.

9.9 Guarding systems must be in place when there is the possibility that people will come in contact with hot surfaces, belts, gears, shafts, pulleys, sprockets, spindles, drums, flywheels, chains, or reciprocating, rotating, or moving parts.

9.10 Any modification or addition that affects the capacity or safe operation of machinery or equipment must have written approval from the manufacturer. If such modifications are made, the capacity, operation, safety, and maintenance instruction plates, tags, or decals will be changed accordingly. The original safety factor of the equipment must not be reduced.

10.0 BASIC OPERATING RULES

10.1 Only trained and experienced personnel who are familiar with the use, limitations, and maintenance requirements of the equipment are permitted to operate heavy equipment. Equipment must be operated in accordance with the manufacturer's instructions and recommendations. Operators will wear seatbelts when operating equipment 100% of the time regardless of travel duration.

10.2 Equipment must not be operated in a manner that will endanger persons or property, nor are safe operating speeds or equipment load ratings to be exceeded. Before moving equipment, operators will make certain that no workers who are around the equipment are in danger.

10.3 Operators will be given the opportunity to practice operating their assigned equipment while wearing special personal protective equipment (such as respirators or Tyvek) before entering exclusion zones or areas where other workers are present.

10.4 When parking a machine, the operator will engage the locking mechanism, lower the blade, bucket, or other attachments to the ground or to a secured position, place the shift lever in park or low gear, and shut the engine down. All equipment must be parked on level ground or, if not on level ground, secured with chocks or equivalent devices. When possible, heavy equipment will be parked in locations inaccessible to children and unauthorized persons.

10.5 Equipment left unattended at night will be equipped with lights, reflectors, or barricades if it is parked adjacent to a highway that is in normal use or adjacent to construction areas where work is in progress. Ignition keys will be removed from the equipment.

10.6 Towing heavy equipment presents an added hazard in that someone could get crushed between the towing vehicle and the equipment being towed. The

towing vehicle will be stopped, the shift levers placed in neutral, and the brakes set before workers are permitted to couple the towed equipment. Wheels of equipment being coupled will be chocked. Operators must also pay attention to the pinching hazards associated with coupling and uncoupling the towing equipment.

10.7 When heavy equipment is operated or moved on public roadways, a "slow moving vehicle" emblem will be affixed to the back of the equipment.

10.8 During travel, buckets, blades, and other attachments will be kept close to the ground.

10.9 The machine's transmission will always be kept in gear during travel.

10.10 Safe distances will be maintained between heavy equipment and overhead power lines and utility poles. The minimum safe clearance distance is 10 feet. The utility company will be notified and consulted to determine the actual safe clearance distance. Dump bodies and attachments will be lowered before passing under overhead power lines. When power lines cross access or haul roads, signs will be posted on each side of the crossing approach indicating the presence of the power lines. On heavily traveled routes, rider poles or "goalposts" will be located on each side of the crossing approach to ensure that booms, masts, dump bodies, and other such attachments are lowered to a safe position.

10.11 Construction equipment or vehicles will not be moved onto grades with angles that will cause the equipment to tip or roll over. Operators must know the limits of each machine they operate. Guidelines for preventing roll over are as follows:

- Avoid steep slopes or unstable surfaces. If you must drive on a slope, keep the load low and proceed with caution. Do not drive across a steep slope. Drive straight up and down the slope. (If you must turn on an incline, turn wide and slow with the bucket carried low.)
- Travel up and down slopes with the heavy end of the loader pointed uphill
- Do not dig under the machine or stabilizers. Avoid undercutting and working close to edges of excavations. Never undercut a high bank, because the edges could collapse

15.00 HOUSEKEEPING

1.0 OBJECTIVE

At each Hausmann Construction, Inc. project location, personnel will adhere to a strict level of cleanliness to prevent incidents related to poor housekeeping and sanitation.

2.0 PURPOSE

This procedure sets up guidelines for housekeeping and sanitation that will be used on Hausmann Construction, Inc. projects.

3.0 GENERAL REQUIREMENTS FOR HOUSEKEEPING

3.1 Scrap materials and rubbish are fire and incident hazards and will not be allowed to collect on the jobsite. Hausmann Construction, Inc. will provide trash cans, trash cart for trash that their self-performed work generates and dumpsters for removal of trash offsite. Subcontractors are responsible for provide trash can and trash carts for transport of trash and debris they generate performing their scope.

3.2 Tools and materials will be neatly stored when not in use and will not be left where they may create a hazard to other employees.

3.3 Toilets, wash-up areas, shower trailers, and lunchrooms and break areas are to be kept clean and sanitary.

3.4 Remove nails from scrap lumber before storage or disposal.

3.5 Clean up spills of oil, grease, or other liquids immediately after they occur.

3.6 Work areas will be kept neat and clear of debris and litter. Indoor areas will be kept free of excessive dirt and dust.

3.7 Traffic aisles, doorways, and scaffold, stair, and ladder landings will be kept free from scrap, debris, and tripping hazards and obstacles such as ice and snow.

3.8 Materials will not be stored within 6 feet of electrical panel boxes or load centers.

3.9 Directional and informational signs must be clean and visible.

4.0 SANITATION

4.1 Clean drinking water in tightly closed containers and disposable cups must be provided. Water containers will be labeled to identify their contents.

4.1.1 Drinking water containers will be cleaned and sanitized daily.

4.1.2 Drinks and other food items will not be stored in drinking water containers.

4.2 Water that is drawn from a private well will be tested to verify the water is fit for human consumption.

4.3 Outlets carrying non potable water will be marked.

4.4 Workers will be provided with rest room facilities and will be required to use them. Rest room facilities will contain a hand-washing sink or hand sanitizer dispenser, bathroom tissue, and a door that can be locked from the inside. Rest room facilities will be marked by users' gender.

Rest room facilities will be provided for employees according to the number of workers on the jobsite:

Number of Workers	Toilets and Urinals
Less than 20	1 (if cleaned twice per week)
20 to 200	1 toilet and 1 urinal per 40 workers
More than 200	1 toilet and 1 urinal per 50 workers

4.4.1 When chemical toilets are used on the project, the toilets will be pumped at least weekly.

4.4.2 When chemical toilets are used at night, they. They will placed in lit areas.

4.5 Washing facilities (for hand washing or showers) will be provided for employees using paints, coatings, or chemicals, or working in other operations where contaminants may be harmful to workers. Where such facilities are provided, workers will be required to use them.

4.5.1 Washing facilities will be equipped with soap, towels, and other supplies necessary for cleansing. As necessary, the water will be heated.

4.5.2 Shower facilities will be equipped with hot and cold water, heaters, ventilation, lights, privacy curtains, and doors that can be locked from the inside.

4.6 Areas will be appointed for eating, drinking, and the use of tobacco products.

4.7 Refrigerators and coolers used to store laboratory samples will be clearly labeled "NOT FOR FOOD STORAGE."

5.0 LIGHTING

5.1 Construction areas, ramps, runways, corridors, offices, shops, and storage areas will be lit to not less than the minimum illumination intensities listed below while any work is in progress.

Foot Candles	Areas of Operation
5	General construction area lighting.
3	General construction areas, concrete placement, excavations and waste areas access ways, active storage areas, loading platforms, refueling areas, and field maintenance areas.
5	Warehouses, indoor corridors and hallways, and tunnels, shafts and general underground work areas.
10	General construction plants and shops, screening plants, mechanical and electrical equipment rooms, carpenter shops, rigging lofts and active storerooms, and indoor toilets and workrooms.
30	Offices and first aid stations.

6.0 WASTE DISPOSAL

6.1 Suitable receptacles will be provided for waste and scraps. Nonhazardous waste and hazardous waste will be disposed of and stored in separate receptacles. Receptacles will be covered.

6.2 Waste such as oily rags will be stored in approved self-closing containers.

6.3 Receptacles containing hazardous waste will be labeled under U.S. Environmental Protection Agency (USEPA) requirements.

6.4 Disposal of wastes will be under applicable environmental laws and rules.

7.0 INSPECTIONS

Frequent housekeeping inspections will be made by supervisory personnel to confirm the following:

- Trip hazards and hazards caused by tools and equipment have been removed
- Incoming materials are secured to prevent tipping or rolling
- Trash is secured in covered containers and its contents is identified
- Litter is picked up
- Scrap lumber with protruding nails, pipe, sawdust, snow, and other debris have been cleared from work areas, passageways, stairs, and in and around buildings

and other structures

16.00 LADDERS & STAIRWAYS

1.0 OBJECTIVE

Portable ladders used by Hausmann Construction, Inc. personnel must meet the applicable needs of the Occupational Safety and Health Administration (OSHA) and American National Standards Institute (ANSI) standards. Portable ladders include step, extension, straight, and job-made ladders.

2.0 PURPOSE

This procedure sets up guidelines for the buying, care, and use of portable ladders used on project sites. It is a review of 29 CFR 1926.1053, Subpart X, "Ladders."

3.0 GENERAL SAFETY MEASURES FOR LADDERS

3.1 A stairway, ladder or ramp will be provided at all points of personnel access where there is a break in elevation of 19 inches or more and no other means of safe access is available.

3.2 Only Type I or greater industrial fiberglass ladders will be used by Hausmann Construction, Inc. employees and subcontractors. Metal ladders will not be used on Hausmann Construction, Inc. jobsites without the approval of the project superintendent.

3.3 Ladders will be inspected before use. Ladders with broken or missing rungs or steps, broken or split side rails, or other deficiencies will be tagged "OUT OF SERVICE" and either properly repaired or destroyed.

3.4 Before raising a ladder or climbing a ladder, employees will inspect the work area for head obstructions and electric lines. Ladders will be positioned away from electrical wires.

3.5 Ladders will be tied, blocked, or otherwise secured to prevent displacement while in use.

3.6 The side rails of a ladder will extend at least 36 inches above the upper landing surface. When this precaution is impracticable, grab rails will be installed to provide a secure grip for employees mounting or dismounting the ladder.

3.7 Non-self–supporting ladders will be pitched 1-foot out from the support structure for every 4 feet of ladder working length. Ladders will not be used in a horizontal position as platforms.

3.8 When not in use, ladders will be stored under suitable cover to protect them from the elements.

3.9 When ascending or descending, workers will always face the ladder and maintain 3 points of contact with the ladder.

3.10 Employees will not attempt to ascend or descend a ladder while carrying tools or materials in their hands. Tools and materials will be hoisted by mechanical means or roped to the working level.

3.11 Ladders will not be placed in doorways, roadways, or other areas with heavy traffic without guards or barricades.

3.12 Job-made ladders will conform to 29 CFR 1926.1053 (a) (1). (See Paragraph 5.0 for ladder blue print)

3.13 Employees will not work or stand on the top step or the second-to-top step of a stepladder.

3.14 Slippery conditions on ladder rungs and rails will be eliminated before the ladder is used.

3.15 Wooden ladders will not be coated with any opaque covering except for identification or warning labels, which may be placed on only one face of a side rail.

3.18 Portable extension or straight ladders will be equipped with nonskid safety feet.

3.19 Employees will be trained in the proper use and care of ladders. They will also be informed on the nature of fall hazards in the work area and the procedures to lessen these hazards.

3.20 Two separate ladders or double-cleat ladders will be provided for access to and from work areas with 25 or more employees or where simultaneous two-way traffic is necessary.

4.0 FIXED LADDERS

4.1 Fixed ladders will be designed, constructed, and inspected in accordance with ANSI A14.3, “Safety Requirements for Fixed Ladders” and the requirements of 29 CFR 1926.1053.

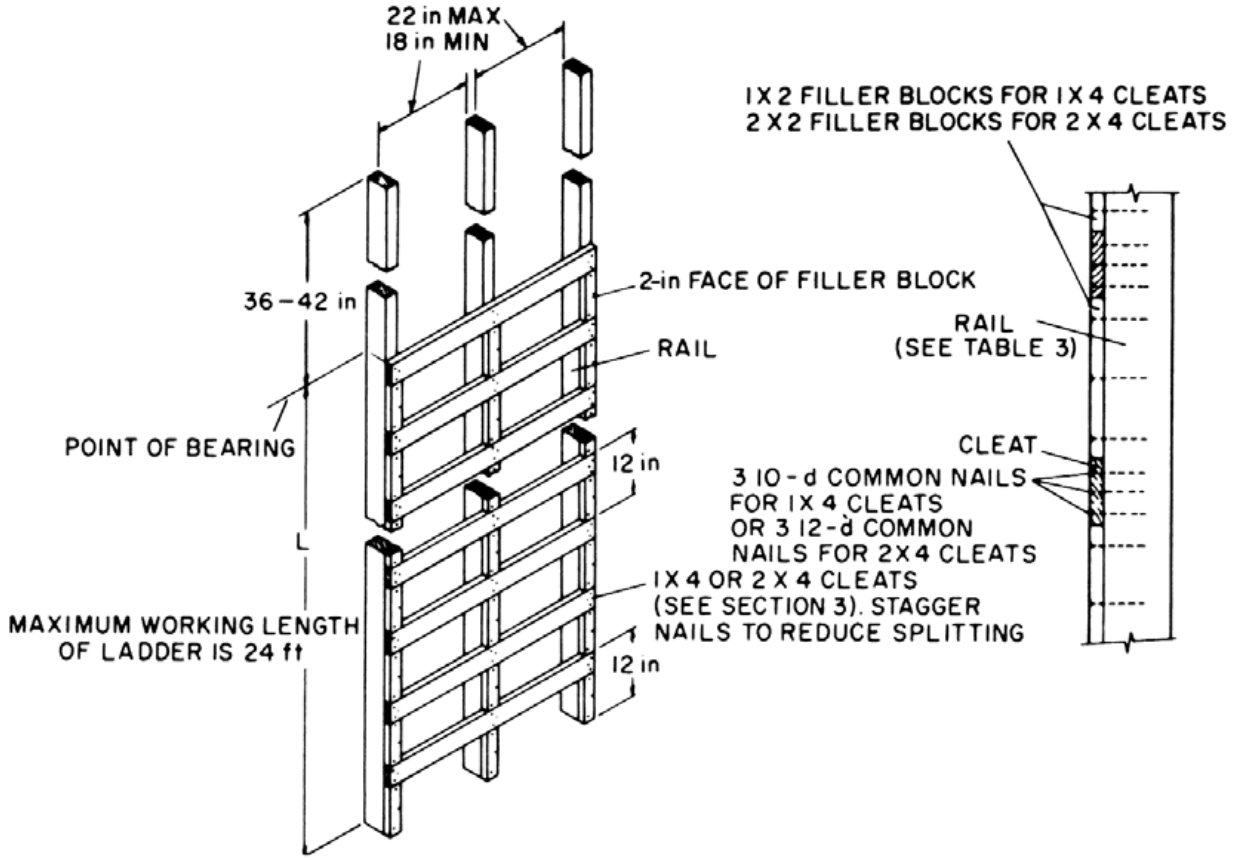
4.2 Fixed vertical access ladders must

- Be fixed in position with side rails extending 3 feet above the top landing
- Have rungs at least 7 inches away from the surface to which the ladder is attached
- Be offset at rest platforms at least every 30 feet
- Be equipped with safety cages when the fall potential is more than 10 feet
- Have rungs spaced a minimum of 12 inches apart

4.3 Fixed ladders fabricated from reinforcing bars or other questionable material will not be used.

4.4 Self-retracting lifelines or other ladder safety devices will be used when workers are climbing fixed ladders. This precaution applies even when a fixed ladder is equipped with cages, wells, and landing platforms.

5.0 Job Built Ladder Blue Prints

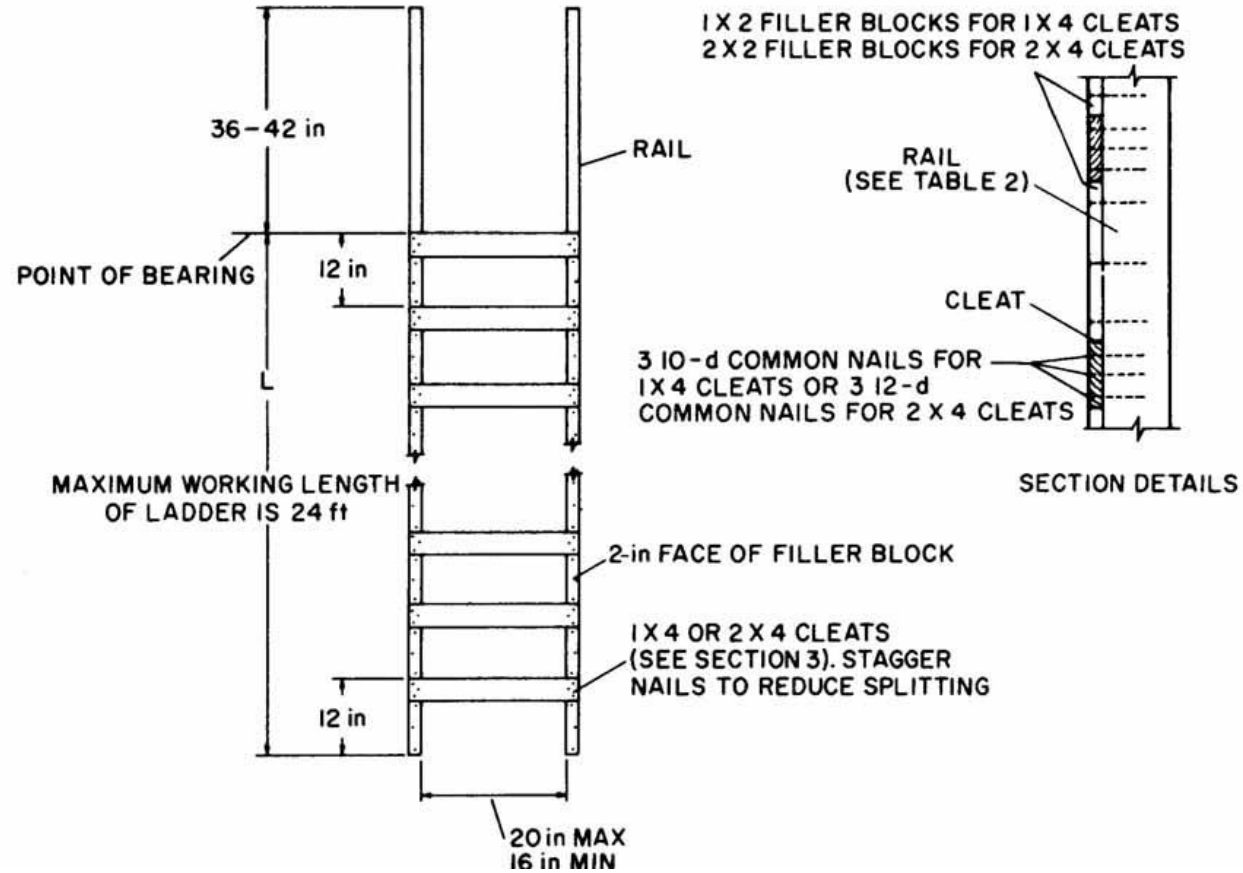


Minimum rail size for double-cleat ladders (nominal-dimension lumber)

Working Length	Pitch (H/L) (See Notes)				
(feet)	**Vertical**	**1/10**	**1/8**	**1/6**	**1/4**
12	2x4	2x4	2x4	2x4	2x4
14	2x4	2x4	2x4	2x4	2x4
16	2x4	2x4	2x4	2x4	2x6
18	2x4	2x4	2x4	2x6	2x6
20	2x4	2x4	2x6	2x6	(Note 2)
22	2x4	2x6	2x6	2x6	(Note 2)
24	2x4	2x6	2x6	2x6	(Note 2)

Notes:

1) Pitch is defined as H, the horizontal distance from the base of ladder to supporting surface, divided by working length L, length of rail from base to point of bearing at the top.
2) Stresses exceed capacity of 2x6 rails for this combination of height and pitch.



Minimum rail size for single-cleat ladders (nominal-dimension lumber)

Working Length	Pitch (H/L) (See Note 1)				
(feet)	**Vertical**	**1/10**	**1/8**	**1/6**	**1/4**
12	2x4	2x4	2x4	2x4	2x4
14	2x4	2x4	2x4	2x4	2x4
16	2x4	2x4	2x4	2x4	2x6
18	2x4	2x4	2x4	2x6	2x6
20	2x4	2x4	2x6	2x6	2x6
22	2x4	2x6	2x6	2x6	2x6
24	2x4	2x6	2x6	2x6	2x6

Note:
1) Pitch is defined as H, the horizontal distance from the base of ladder to supporting surface, divided by working length L, length of rail from base to point of bearing at the top.

STAIRWAYS

6.0. OBJECTIVE

Stairways found on Hausmann Construction, Inc. worksites; project or fixed location must meet the applicable requirements of the Occupational Safety and Health Administration (OSHA).

7.0 PURPOSE

This procedure establishes guidelines for the construction and use of stairways used on the project sites. It is an overview of 29 CFR 1926.1052, Subpart X "Stairways."

8.0 GENERAL SAFETY MEASURES FOR STAIRWAYS

8.1 A stairway or ladder will be provided at all points of personnel access where there is a break in elevation of 19 inches or more and no other safe means of access is provided.

8.2 Stairways that will not be a permanent part of a structure will have landings at least 30 inches deep and 22 inches wide at every 12 feet of vertical rise.

8.3 Stairways will be installed between 30 and 50 degrees from the horizontal.

8.4 Variations in riser height or stair tread width may not exceed 1/4 inch on any stairway system.

8.5 Where doors or gates open directly onto a stairway, a platform extending at least 20 inches beyond the swing of the door will be provided.

8.6 Stairways having four or more risers or rising more than 30 inches will have at least one handrail and one stair rail system along each unprotected side or edge.

- Stair rails will consist of 2" x 4" material
- The height of the top rails of a stair rail system will be between 36 and 37 inches from the upper surface of the handrail to the tread
- Midrails that consist of 1" x 6" material or equivalent intermediate structural members will be provided between the top rail and the steps
- Handrails and top rails will be capable of withstanding, without failure, a force of at least 200 pounds applied within 2 inches of the top edge in any downward or outward direction

- Temporary handrails will have a minimum of 3 inches of clearance between the handrail and walls or other objects

8.7 Parts of stairways will be free of hazardous projections, such as protruding nails.

8.8 Slippery conditions on stairways will be eliminated. Material will not be stored in stairways. The access points to stairways and the stairs will be kept clear at all times.

8.9 Stairways will be lit up with a minimum of 5 foot candles.

9.0 STAIRWAY UNDER CONSTRUCTION

9.1 Except during stairway construction, foot traffic is prohibited on stairways with pan stairs or skeletal metal stairs where the treads or landings are to be filled in with concrete or other material and permanent treads are to be installed at a later date.

9.2 Stairways under construction can be opened to foot traffic only after the stairs are temporarily fitted with wood or another solid material to the top edge of the pan and a guardrail system or handrails are installed. Treads for temporary service will be installed the full width and depth of the stair or landing and will be secured to prevent movement. Temporary treads will be replaced when worn below the level of the top edge of the pan.

17.00 MANUAL LIFTING

1.0 PURPOSE

Hausmann Construction, Inc. is committed to providing a safe and healthy working environment for each employee. Musculoskeletal disorders (MSD) account for most reported injuries and we must lessen the risk and incidence of MSDs. To achieve this goal, Hausmann Construction, Inc. needs each worksite to set up and keep an MSD, lifting and handling loads program with the following:

- Continuing training of management, supervisors, and employees (including new hires) on MSD awareness hazards and control measures
- Training of specialized staff (appointed Hausmann Construction, Inc. safety representative) on MSD hazard assessment and control measures
- Control of MSD hazards through the application of engineering and administrative controls
- Integrating ergonomics principles into workplace design and work techniques
- A realization that personal protective equipment may only be used as a substitute for engineering or administrative controls if it is used in circumstances in which those controls are not practicable.

2.0 KEY RESPONSIBILITIES

2.1. HAUSMANN CONSTRUCTION, INC. SAFETY DEPARTMENT PERSONNEL

Develop local lifting and handling loads programs for each work location by this procedure and ensures employees are aware of the requirements of the local lifting and handling loads program. Additional duties include:

- Communicate, promote and support the MSD, lifting and handling loads program
- Conduct MSD training sessions and/or provide MSD training materials
- Maintain records of MSD training that they provide in a manner that supports accuracy and ease of access for monitoring purposes
- Monitor corrective actions taken as identified on incident reports
- Support supervisors and the worksite in the lifting and handling loads program process
- Assist in the investigation of MSD incidents to address injury hazards
- Bring to the attention of Hausmann Construction, Inc. management any MSD hazards identified during their investigations, audits or inspections
- Provide input into purchasing specifications for new tools, equipment and

furniture as needed to reduce MSD hazards

- Provide input into the development of safe work procedures to reduce MSD hazards

2.2. PROJECT MANAGER/SUPERINTENDENT

Responsible for the implementation and maintenance of the lifting and handling loads program for their facility and ensuring assets are made available for compliance with the procedure. He or she will also:

- Ensure that work locations and departments implement and maintain the provisions of the lifting and handling loads program
- Seek regular reports to ensure that their worksite is in compliance with the lifting and handling loads program
- Manual lifting equipment such as dollies, hand trucks, lift-assist devices, jacks, carts, hoists must be provided for employees. Other engineering controls such as conveyors lift tables, and work station design will be considered
- Use of provided manual lifting equipment by employees must be enforced

2.3. CRAFT EMPLOYEES

- Will attend MSD related training for the task they are performing.
- Practice MSD prevention strategies as per MSD training.
- Comply with safe work procedures.
- Correctly use the equipment provided by Hausmann Construction, Inc. according to manufacturers' recommendations.
- Report to the supervisor any unsafe acts, unsafe tasks, unsafe conditions or equipment problems that create MSD hazards.
- Report any MSD incidents to the supervisor and cooperate in the investigation process.

3.0 PROCEDURE

3.1. WORKSITE ASSESSMENT

Before manual lifting is performed, a hazard assessment must be completed. The assessment must consider size, bulk, and weight of the object(s), if mechanical lifting equipment is required, if two-man lift is required, whether vision is obscured while carrying and the walking surface and path where the object is to be carried. Objects over 50 pounds require the use of a second person or the aid of a mechanical lifting device. The assessment will also include:

- Physical Demands
  - Neck Back Shoulder Wrist.
  - Hand.
  - Knee / Ankle.

  - Feet.

- Force Required and Working Distance
  - Whether employees push, pull, lift, lower, or carry objects that are too heavy or require too much force; away from the center of the body or in a jerky or twisting manner.
- Work Postures
  - Whether the back is curved too much or in a stooped position.
  - Whether the back is twisted during movements.
  - Whether the neck is bent or twisted.
  - Whether the arms are away from the body.
  - Whether the wrists are flexed, extended or pinched positions.
- Repetitive Use of Similar Muscles
  - Whether employees perform movements over and over in the same way.
- Static Muscle Use and Duration
  - Whether employees hold any of the above work postures for > 20 sec.
  - Whether employees stand for long periods with their knees locked.
  - Whether employees stand in one position without moving or stretching.
- Contact Stress
  - Whether employees put localized pressure on any part of their body.
- Work Space Layout and Conditions
  - Whether there are working heights, reaches in workspace, equipment, tool design, storage conditions, etc., that cause or contribute to employees experiencing any of the physical demands risk factors.
  - Also consider seating, floor surfaces, the characteristics of objects handled, including size and shape, load condition and weight distribution, and container as well as tool and equipment handles.
- Organization of Work
  - Whether there are work processes, monotonous job tasks, work recovery cycles, task variability, work rate, machine paced tasks or peak activity demands that cause or contribute to rushing, frustration, fatigue or other visible signs of stress.
- Environmental Conditions
  - Whether employees are exposed to poor lighting, vibration, cold or hot air/wind/water.

4.0 WORK CONTROLS

Hausmann Construction, Inc. must ensure based on the assessment, implement control measures to eliminate, minimize or reduce, so far as is reasonably practicable, the risk of musculoskeletal injury to the worker.

4.1. HANDLING HEAVY OR AWKWARD LOADS

Hausmann Construction, Inc. will take all practicable means to adapt the heavy or awkward loads to facilitate lifting, holding or transporting by workers or to otherwise minimize the manual handling required. Those include:

- Where use of lifting equipment is impractical or not possible, two man lifts must be used.
- Loads carried on handcarts will be secured.
- Awkward type loads will be secured to prevent tippage.
- Additional methods include:
  - Reducing the weight of the load by dividing it into two or more manageable loads.
  - Increasing the weight of the load so that no worker can handle it and therefore mechanical assistance is required.
  - Reducing the capacity of the container.
  - Reducing the distance the load must be held away from the body by reducing the size of the packaging.
  - Providing hand holds.
  - Team lift the object with two or more workers.
  - Improve the layout of the work process to minimize the need to move materials.
  - Reorganize the work method(s) to eliminate or reduce repeated handling of the same object.
  - Rotate workers to jobs with light or no manual handling.
  - Use mobile storage racks to avoid unnecessary loading and unloading.

4.2. INCIDENTS AND INJURIES

If an employee reports symptoms of a musculoskeletal injury (MSI) Hausmann Construction, Inc. will:

- Musculoskeletal injuries caused by improper lifting must be investigated and documented. Incorporation of investigation findings into work procedures must be accomplished to prevent future injuries.
- Injuries must be recorded and reported as required by 29 CFR Part 1904.

4.3. REVIEW & UPDATING LIFTING AND HANDLING LOADS PROGRAM

- Supervision must periodically evaluate work areas and employees' work techniques to assess the potential for and prevention of injuries. New operations will be evaluated to engineer out hazards before work processes are implemented.

5.0 TRAINING

Hausmann Construction, Inc. will ensure that a worker who may be exposed to the possibility of musculoskeletal injury is trained in specific measures to eliminate or reduce that possibility. Our training will include:

- General principles of ergonomics.
- Recognition of hazards and injuries.
- Procedures for reporting hazardous conditions.

18.00 MASONRY & CONCRETE

1.0 OBJECTIVE

The objective of this procedure is to prevent incidents related to masonry and concrete construction performed on Hausmann Construction, Inc. project sites.

2.0 PURPOSE

The purpose of this procedure is to provide safety guidelines for masonry and concrete construction, and to protect employees and property from harm when these trades are performed.

3.0 SITE PREPARATION

3.1 Before erecting formwork or shoring the surface area in which the formwork or shoring will be placed will be prepared to receive the load that will be imposed on its surface. The existing ground will be level, thoroughly compacted and verified by a competent person before erecting formwork and shoring to prevent settlement.

3.2 The site layout will simplify the erection and taking apart of formwork and shoring, moving equipment (including ready-mix trucks), concrete pumps, canes, and the storage of reinforcement steel, formwork, and shoring.

3.3 Electrical hazards (overhead power lines and temporary power) in the work area will be identified and the local power company consulted to set up safe clearance distances or to move the utilities.

3.4 Whenever possible, formwork and shoring will be roped off by using caution tape or rope from other work (such as excavation or pile driving).

4.0 REINFORCING STEEL

4.1 Reinforcing steel for walls, piers, columns, and similar structures will be laterally supported to resist overturning. The lateral supports for reinforcing steel will be capable of withstanding the force that will be applied to them during construction.

4.2 Bundles of reinforcing steel moved by crane will be securely tied together to prevent slipping. Steel over 20 feet long will be handled by two-part slings and have at least a 33.3 degree rigging angle or greater, that it within the capacity of the sling.

4.3 Exposed rebar, onto or into which workers could fall, will be covered to remove the hazard of impalement. Reinforced plastic cap coverings will be used for impalement protection.Wooden troughs or other substantial material may also be used to cover any vertically protruding rebar.

4.4 When working more than 6 feet above any close working surfaces, placing and tying reinforcing steel in walls, piers, columns, etc., workers must use a personal fall arrest system as set forth in the Hausmann Construction, Inc. safety procedure (Fall Prevention & Protection). Position devices for rebar work will be rigged so a worker cannot free fall more than 2 feet. The positioning device will be secured to an anchorage capable of supporting at least twice the potential impact load of the worker's fall or 3,000 pounds, whichever is greater.

4.5 Reinforcing mats used as walkways will be provided with planking to provide safe footing.

4.6 Reinforcing steel will not be used as guy attachments at dead men or other anchorage points and will not be used for scaffolding hooks, stirrups, or as a load-bearing member of any lifting device.

4.7 Wire mesh reinforcing mats will be secured at each end or the roll turned over to prevent recoiling action. Unrolled wire mesh will be secured on each side of a proposed cut before cutting the mesh.

4.8 No workers, except those essential to post-tensioning operations, will be allowed to be behind the jack during tensioning. Signs and barricades will be erected to limit workers access to post-tensioning areas during tensioning.

5.0 VERTICAL SHORING

5.1 Before erection, shoring equipment will be inspected by the concrete contractor to verify that it conforms to the equipment named in the shoring layout. Unauthorized changes or substitution of equipment will not be made unless the designer has approved the change or substitution.

5.2 The manufacturer's specification for fabricated shoring will be available at the job site during the planning and execution.

5.3 Erecting shoring will be under the supervision of an experienced and competent person.

5.4 Shoring equipment will be inspected following the manufacturer's procedures. Metal frame shoring equipment and accessories will not be used if excessively rusted, bent, dented, rewelded beyond the original factory weld locations, or if they have broken welds or other defects. Each part will be in good working order and in a condition similar to that of original manufacture. Damaged shoring equipment will not be used for shoring. Any part which cannot be brought into proper alignment or contact with the part, into or onto which it is intended to fit, will be "Red-Tagged", removed and replaced.

5.5 Erected shoring equipment will be inspected by the contractor immediately before, during, and immediately after the placement of concrete to decide the shoring equipment meets the needs named on the formwork drawings. Any

shoring found to be damaged or weakened must be immediately reinforced or reshored.

5.6 Reshoring will be provided when necessary to safely support slabs and beams after stripping or whenever the concrete is required to support loads in excess of it capacity.

5.7 Temporary storage of reinforcing rods, materials, or equipment on top of formwork is banned unless these temporary structures have been designed or strengthened to support the added loading. Eccentric loads on shore heads and similar members will be restricted unless these members are designed for such loads.

6.0 FRAME SHORING

6.1 Frame shoring (tubular welding and tube and coupler) will not be loaded beyond the safe working load recommended by the manufacturer. Frame shoring will be designed with a minimum safety factor of 2.5.

6.2 Locking devices on frames and braces will be in good working order; coupling pins will align the frame or panel legs; pivoted cross braces will have their center pivot in place and parts will be in good serviceable condition. Couplers (tube and couple shoring) will be of a type metal such as drop-forged steel, malleable iron, or structural grade aluminum; gray cast iron will not be used. Couplers that are deformed, broken, or have defective or missing threads or bolts will not be used. Frames and braces found to be defective or damaged will be removed from service.

6.3 Following erection, a through inspection will be made to verify that:

- The shoring has been erected as shown on the layout drawing
- Spacing between towers and cross brace spacing does not exceed that shown on the layout, and that all-locking devices are in the closed position
- The devices for attaching the external lateral stability bracing is securely fasten to the legs of the shoring frame
- Interlocking tubular members and coupling are properly installed and tightened
- Base plates, shore heads, extension devices, or adjustment screws are in firm contact with the footing sill and the form
- Any items found not acceptable will be removed from service or repaired

6.4 The following general safety precautions will apply to frame shoring:

- Follow the shoring layout drawing and do not omit needed parts
- Do not exceed the shore frame spacing or tower heights as shown on the shoring layout
- The shoring load must be carried on all legs

- Plumb and level shoring frames as the erection continues, and check plumb and level of shoring towers just before pour.
- Do not force braces on frames to fit-level the shoring towers until proper fit can be made easily
- Tie high towers of shoring frames together with sufficient braces to make a rigid, solid unit. Shoring must always be secured when the height of the shoring towers exceeds four times the minimum base width. Some states require a height-to-minimum base width ratio of three to one (3:1). Refer to the governing codes for your job location
- Exercise caution in erecting or taking apart freestanding shoring towers to prevent tipping
- Do not climb cross braces
- Use screw jacks to adjust for uneven grade conditions, to level and accurately position the falsework, and to aid stripping
- Do not exceed the manufacturer's recommended maximum extension of screw jacks. Keep screw jack extensions to a minimum for maximum load carrying capacity
- Make certain that screw jacks are firmly in contact with the foundation and frame legs
- Screw jacks will not be used to raise formwork during concrete placement

7.0 SINGLE-POST SHORES

7.1 Single-post shoring layout will provide for the maximum intended loading with a minimum safety factor of three. When single-post shores are to be used in more than one tier, they will be designed and inspected by a registered structural engineer.

7.2 Single-post shores will be horizontally braced in both the longitudinal and transverse directions, and will also be braced diagonally. The bracing will be installed as the shores are being erected.

7.3 Single-post shoring layouts will be horizontally braced in both the longitudinal and transverse directions, and will also be braced diagonally. The bracing will be installed as the shores are being erected.

7.4 Single-post shores and adjusting devices will be inspected before use. Fabricated shores and adjusting devices will not be used if heavily rusted, bent, dented, rewelded, damaged, or deficient in any manner. Timber shores and timber components of fabricated shores will not be used if split, knotted, broken, or otherwise structurally deficient.

7.5 Base plates and shore heads of single-post shores will be in firm contact with the footing sill and the form material.

7.6 Adjustment of single-post shores will not be made after the concrete is in place.

8.0 RELEASING AND MOVING FORMS

8.1 Forms will be securely attached to wire rope slings, having a minimum safety factor of eight, when raised or moved by crane or other mechanical lifting devices. Panels and form sections will be equipped with hoisting brackets or attachments for slings.

Loose tools and materials will be removed before moving the forms. Taglines for controlling forms will be used whenever necessary and determined by the rigging person to protect workers or structures.

8.2 Workers are not allowed to ride forms or form scaffolding being raised or moved.

8.3 Vertical and overhead forms will not be released until adequately braced or secured. Workers at lower levels exposed to falling materials will be removed to a safe area before release or moving forms.

8.4 Forms, shores and bracing (except those used for slab on grade and slipforms) will not be removed until the concrete has gained enough strength as listed in the contract specifications or shown on the form drawings.

9.0 CONCRETE TOOLS and CONVEYANCE SYSTEMS

9.1 Concrete buckets will have positive safety latches or similar safety devices installed to prevent premature or accidental dumping. Manually operated gates will be of the self-closing type. Riding the concrete bucket is restricted. Raised concrete buckets will be routed so no worker, or the fewest number possible, are exposed to the hazard of falling concrete buckets. A appointed signal person will provide direction to the crane operator using the standard hand signals or radio communications that are common to the industry. Cranes and rigging must comply with the Hausmann Construction, Inc. policies outlined in the Cranes safety procedure as well as the regulations of the Occupational Safety and Health Administration (OSHA).

9.2 Handles on bull floats used where they can contact energized electrical conductors must be made of nonconductive material or insulated with a nonconductive sheath that will protect the operation from electrical shock.

9.3 Powered and rotating type concrete troweling machines that are manually guided must be equipped with a control switch that has a positive mechanical release (dead-man switch) that automatically stops trowel rotation when the operator removes his and her hand from the equipment handle.

9.4 Handles of concrete buggies must not extend beyond the wheels on either side of the buggy. Motorized concrete buggies will be equipped with a dead-man control switch and knuckle guards. Stop-checks will be used at all places where buggies dump if deemed necessary.

9.5 Runways will be of sturdy construction, evenly supported and will have a smooth running surface and curbs (2" x 2" or 4" x 4"). Where necessary, runways will have a railing high enough on the open side to protect workers. If a single runway is used, turnarounds will be provided. Buggies will be routed in a continuous loop to lessen the danger of collision.

9.6 Sections of trimies and similar concrete conveyances will be secured with wire rope or equivalent material as well as the regular coupling. Cup-type couplings using flanges with the same outer diameter as pipe are restricted.

9.7 Concrete trucks must not travel through the job site with the chute extended unless a spotter is used. When unloading on a slope, the brakes set to prevent movement.

9.8 Concrete mixers with one cubic yard or larger loading skips will be equipped with a mechanical device to clear the skip of material. Skip clearing will not be performed by a worker standing under or near a raised skip while striking it with a handheld tool. Guardrails will be provided on each side of the dangerous area under the raised skip

9.9 Grid-guards will be installed on all mortar, plaster or fireproof mixers of one yard capacity or smaller. All guards will be in place before the mixer is ran.

9.10 Bulk cement storage structures will be equipped with conical or tapered bottoms, and mechanical or pneumatic means of starting the flow of material. No worker will be allowed to enter storage facilities unless the ejection system has been shut down, locked out and tagged to suggest the ejection system is not to be worked.

9.11 Masonry saws will be guarded with a semicircular enclosure over the blade unless designed by the manufacture without.

9.12 No worker will be allowed to perform maintenance or repair activities on equipment (i.e., mixers, screens or pumps used for concrete and masonry construction) where the unplanned operation of the equipment could occur and cause injury, unless all known potentially hazardous energy sources have been locked out and tagged.

10.0 CONCRETE PUMP TRUCKS

10.1 Concrete pump trucks and parts (pump, boom, piping) will be inspected by the manufacturer's instructions and found to be in safe working condition. Concrete pumps will be equipped with an emergency shut off.

10.2 Trucks will be positioned so any obstacles (power lines, ditches, walls, and columns) do not interfere with safe operation. Reference Owner manual for clearance requirements for powerline.

10.3 Visual communication between the pump operator and the placement area will be kept, or a signalperson will be used to assume safe placement of concrete.

10.4 Outriggers must be extended and locked into place and kept away from un-supportive surfaces. Pads or dunnage will be used as necessary to stabilize the crane. Raised tires will be blocked to prevent unnecessary bouncing or rolling.

10.5 The boom must never be allowed to contact deck forming or near structures.

10.6 Clamps, pipe, safety straps, and restraining devices on hoses suspended from booms will be inspected. Cup-type couplings using flanges with same outer diameter as pipe are restricted.

10.7 Concrete pumps will not be worked unless the hopper is guarded. Workers will not place hands or objects in the hopper unless it is locked and tagged out by following the procedures set forth in our LOTO program.

10.8 Pumping line clean out operation must conform to the manufacturer's needs and will be conducted in a named area. The use of the compressed air procedure for cleaning pumping lines is restricted.

11.0 MASONRY CONSTRUCTION

11.1 A limited-access zone will be set up whenever a masonry wall is being built. The limited-access zone will be set up before building the wall and will be equal to the height of the wall being built, plus four feet, and will run the entire length of the wall. Limited-access zone will be established as per requirements stated in section 9 subpart 3.7 controlled access zones of this manual.

11.2 The limited-access zone will be set up on the side of the wall opposite the scaffolding.

11.3 Employees who are building the wall may enter the limited-access zone, but will not allow other employees to enter. The limited-access zone will remain in place until the wall is adequately supported to prevent overturning or collapse.

11.4 Masonry walls over eight feet in height will be adequately braced and supported so they will not overturn or collapse. Limited-access zones and bracing will remain in intact until permanent supporting elements of the structure are in place.

11.5 Scaffolding for masonry construction will meet or exceed the needs of 29 CFR 1926 Subpart L and the Hausmann Construction, Inc. safety procedure (Scaffolds).

12.0 HEALTH HAZARD

12.1 The cutting, grinding, drilling and finishing of concrete and masonry poses a potential silica dust hazards. Each employer must warn employees about the hazards posed by silica dust. Where concrete tools (jackhammers, masonry saws, grinders, etc.) disturb masonry and concrete products, engineering or work practice controls must be implemented to reduce (silica) dust. When engineering or work practice controls are not possible, employees exposed to dust will use respiratory protection. Suggested engineering controls and work practice controls for preventing silica dust is as follows:

- Post Warning Signs
- Employ wet methods
- Connect the tool to a point-of-operation dust collection system
- Limit the number of workers in the work area (workers who are in the area must use respiratory protection)
- Contain the work area with barricades and similar devices
- Use a ventilation system that removes and collects dust (workers in containment must use respiratory protection). Point exhaust away from other workers

12.2 Concrete and masonry cement is irritating and acidic to the eyes and skin. Protective equipment such as rubber boots, kneepads, and protective eyewear must be used when handling concrete. Washing with soap and water is important to prevent skin irritation. Hands will not be washed in a bucket of water used for moistening and washing concrete tools.

12.3 Safety data sheets (SDS) will be available for concrete and masonry products that will be used or disturbed. Also, SDSs are needed for form-release agents, concrete additives or cure agents. All containers will be labeled.

19.00 PERSONAL PROTECTIVE EQUIPMENT (PPE)

1.0 OBJECTIVE

The Hausmann Construction, Inc. personal protective equipment (PPE) program has been established to protect employees from physical and chemical hazards through the proper selection and use of PPE.

2.0 PURPOSE

The purpose of the PPE program is to provide guidance in the selection and use of PPE.

3.0 RESPONSIBILITIES

3.1 Safety Department

3.1.1 The Hausmann Construction, Inc. Safety Director and appointed safety representatives are responsible for setting up and carrying out each facet of this program. They have full authority to make the decisions necessary for the success of this program, including making purchases of equipment that is needed to carry out and manage the program. The Safety Director or appointed safety representatives will review health and safety plans and work plans to verify the PPE selected has been chosen based on known physical and chemical hazards or expected hazards.

3.1.2 Hausmann Construction, Inc. has expressly appointed the safety representative as the competent person who has the authority to halt any of the company's operations when there is danger of serious personal injury from physical or chemical hazards or when the proper personal protective equipment is not being used as needed by the site-specific health and safety plan or by site conditions.

3.1.3 The appointed safety representative will check that proper PPE has been purchased and employees are trained in its proper, safe use, and decontamination and storage.

3.1.4 The appointed safety representative is responsible for ensuring there are satisfactory inventories of PPE to meet the needs imposed by the job and to expect the need for added PPE if more workers are brought on to the job or if workplace conditions change. The appointed safety representative will check that PPE assigned to employees is being kept and properly used by the employees. The appointed safety representative will also keep an inventory of PPE on the site and will inspect this inventory as necessary to verify that it is being kept in serviceable condition so it will ready for use when needed

3.1.5 As part of the PPE program, the appointed safety representative will conduct PPE hazard assessments (job hazard analysis), inspections, and evaluations to decide the continued effectiveness of the PPE. If this assessment, inspection, and evaluation show that any PPE is not effective in protecting workers, the safety representative will immediately take the corrective action necessary to correct the situation.

3.2 SUPERVISORY PERSONNEL

3.2.1 Supervisory personnel are also required to make sure the proper PPE is made available to employees and the employees use the PPE as prescribed by the site-specific health and safety plan, required by site conditions, and by the manufacturer's instructions.

3.2.2 Before the selection and purchase of PPE, supervisory personnel will have a thorough knowledge of the types of hazards for which the PPE will be used and the PPE that will be best suited for the task. The Safety Director or the appointed safety representative, or both will be consulted before the selection and purchase of PPE.

3.3 EMPLOYEES

3.3.1 Employees will use personal protective equipment as named in the health and safety plan, Hausmann Construction, Inc. safety procedures manual, and as called for by site conditions.

3.3.2 Employees will not alter or adapt PPE, and will don, inspect, use, store and keep the PPE according to the instructions provided by supervisory personnel or the manufacturers written instructions.

4.0 PPE REQUIREMENTS

4.1 PPE mandated by the Hausmann Construction, Inc. health and safety program will be provided, at no cost to the employee, by Hausmann Construction, Inc. Subcontractor's area responsible for supplying general and specialty PPE to their employee for their scope of work to be completed.

4.2 Before the first use of PPE, employees will be trained in the proper use of the equipment and its limits. The training will be reinforced in during the toolbox safety talks and more often as needed to refresh employees' memories.

4.3 Where practicable, PPE will be assigned to individual employees for their exclusive use.

4.4 Before PPE is to be reassigned it will be properly cleaned and sanitized.

5.0 PPE SPECIFICATIONS

Personal protective equipment will be selected on the basis of the hazards or potential hazards to which employees may be exposed. Only PPE that is certified by a nationally recognized testing laboratory, society or a government agency will be purchased.

6.0 GENERAL OPERATIONS PPE

6.1 Issued hardhats will be worn 100% of the time with no exceptions or excuses. Hardhats will not be painted, and only authorized decals are permitted on them.

6.2 Footwear will consist of an ankle high leather work boot. Employees will adhere to client procedures that address protective toe footwear (e.g. steel or composite toe protection).

6.3 Employees will wear a high-visibility green or orange shirt, T-shirt, or long sleeve shirt. Class 2 high-visibility shirt or vest maybe required on some projects. Tank tops are not permitted. Long pants are required. Loose clothing, loose jewelry, and neckties will not be worn.

6.4 At a minimum, safety glasses that meet ANSI Standard Z87.1 will be worn on the jobsite 100% of the time with no exceptions or excuses. Safety glasses will be worn under full-face shields and welding shields. Special eye and face protection will be used as required by the expected hazard. Faceshields are required when using harmful chemicals or when exposed to flying particles.

6.5 Personally owned PPE will not be used unless it has been inspected and approved by project superintendent or Hausmann Construction, Inc. Safety Director.

6.6 The gloves for general operations are recommend or when SDS sheet recommends specific glove when working with chemical(s) or material(s).

6.7 As required, inclement weather gear (hardhat liners, over boots, and rain suits) may be required and will be used as needed.

7.0 TRAINING

7.1 Employees required to use PPE will be trained on the limitations of personal protective equipment and on its proper use and maintenance. As part of the training program, employees will receive hazard awareness training that will identify the reason for using PPE and the consequences of not using it. This training will occur with initial orientation and documentation will be kept in employee file.

7.2 Training will be conducted as part of the initial jobsite orientation and will be repeated as necessary whenever a change is made in the type of PPE that must be worn.

8.0 INSPECTION AND MAINTENANCE

8.1 To reduce the possibility of failure, PPE will be properly fitted and maintained in a clean and serviceable condition.

8.2 PPE will be inspected and kept according to the manufacturers' instructions.

8.3 PPE will be inspected daily for cleanliness, dents and cracks, signs of penetration, chemical attack, and other damage that may lessen the degree of safety originally provided. Damaged or questionable PPE will not be used until it has been repaired or serviced.

20.00 POWDER ACTUATED TOOLS

1.0 OBJECTIVE

Powder-actuated tools (PATs) used by Hausmann Construction, Inc. personnel must be operated following manufacturer's instructions and the American National Standards Institute (ANSI) Standard A10.3, powder-actuated fastening systems safety requirements.

2.0 PURPOSE

This procedure sets up criteria for the care and safe use of PATs used.

3.0 CARE OF POWDER-ACTUATED TOOLS

3.1 PATs will be checked daily before loading to verify that safety devices are in proper working order. The method of testing will be in accordance with the manufacturer's instructions. PATs will also be inspected before each use to verify that safety devices are in proper working condition, the tool is clean, all moving parts are working freely, and the barrel is free from obstructions. Defective tools will be immediately removed from service and not used again until proper repairs have been made.

3.2 PATs will never be stored or used in explosive atmospheres, in the vicinity of flammable materials, or anywhere anti sparking tools are required.

3.3 Powder-actuated tools will be locked up when not in use to prevent unauthorized use.

4.0 SAFE USE OF POWDER-ACTUATED TOOLS

4.1 Only properly trained and qualified operators are permitted to use PATs. PAT operators must possess an operator's card issued by the manufacturer's authorized dealer or distributor.

4.2 Adequate eye, head, face, ear, and other applicable personal protection equipment (PPE) as necessitated by working conditions will be used by PAT operators and persons working in the area.

4.3 A loaded PAT must never be carried away from the work site. The tool will remain unloaded until ready for actual use. PATs will never be pointed at anyone, and operators will be keep their hands clear of the open muzzle.

4.4 PATs will be held firmly against and perpendicular to the surface. If a misfire, the PAT will be removed from the working surface for 30 seconds. The manufacturer's instructions for misfires will be followed precisely.

4.5 Manufacturers recommend against driving into hard or brittle materials such as cast iron, glazed tile, surface-hardened steel, glass block, rock, face brick, hollow tile, and similar materials.

4.6 If the PAT jams or an obstacle in found in the bore, follow the manufacturer's instructions. Only fasteners that are designed for use in powder-actuated tools will be used.

4.7 Special shields, fixtures, and adapters will be used for applications requiring the fastening of clips, brackets, and tracks.

4.8 Use the proper type of powder load. This information can be found in the operator's instruction manual.

4.9 In areas where PATs are being used, warning signs and barriers identifying the hazards will be posted.

4.10 An operator's instruction manual will be kept in the carrying case of the tool.

21.00 POWER & HAND TOOLS

POWER TOOLS

1.0 OBJECTIVE

The objective of this procedure is the prevention of incidents associated with the use of power tools by Hausmann Construction, Inc. employees. The provisions of the procedure apply to power tools and equipment owned by the company.

2.0 PURPOSE

This procedure establishes guidelines for the care and safe use of power tools, including electric, pneumatic, and fuel-operated tools used on Hausmann Construction, Inc. projects.

3.0 CARE OF POWER TOOLS

3.1 Power tools will be maintained in a safe working condition and will be inspected before use. Defective power tools will not be used and will be removed from service until repairs can be made.

3.2 When not in use, power tools will be stored in suitable boxes or containers or will be hung on racks. Tools will not be left in walkways or other places where there is a chance the tool will fall or create a tripping hazard. Cutting edges will be protected and tools will not be left where they will roll off benches or tables. Storage areas will be kept free from moisture to prevent corrosion.

3.3 Damaged or worn tools will be promptly and properly repaired. Temporary and makeshift repairs are restricted. If tools cannot be repaired on-the-job, they will be sent to the factory or a shop for repairs. Tools that cannot be repaired will be discarded.

3.4 Power tools will be protected against corrosion damage. Collected grease, dirt, sawdust, and moisture will be quickly removed, and power tools will be cleaned thoroughly when necessary with a non-flammable, non-irritating solvent and wiped clean. Moving and adjustable parts will be lubricated as necessary.

4.0 WORK PRACTICES

4.1 Power tools will be selected based on their weight and size and the type of tool needed for the job. Tools will not be used for anything other than their intended purpose and will not be altered or modified.

4.2 Workers will use only power tools with which they have experience with or on which they have been trained to use.

4.3 Employees who use power tools will be provided with and required to wear personal protective equipment (PPE), including eye and hearing protection, as necessary to protect them from the hazards involved.

4.4 Guards originally supplied with power tools will be in place when the tool is in use. Guards will not be altered, changed, or defeated.

4.5 Power tools must be equipped with a trigger function that stops the blade, drill, or disc once the employee has released pressure. Tools equipped with a "dead man" switch should be taken to an authorized repair center to have the switch removed or replaced.

4.6 Tools will be disconnected from the power source before accessories are changed or repairs are made.

4.7 When using power tools, workers will ensure that they have proper footing, balance, and there is satisfactory lighting. As necessary, the work will be secured with clamps, jigs, or a vise. Workers must never try to hold or secure the material or item being worked on with their hands or feet, nor will someone else hold the work.

4.8 Before drilling, nailing, cutting, or sawing is done into walls, ceilings, or floors, a check for electrical wires and other utilities will be made.

5.0 ELECTRICAL TOOLS

5.1 Electric-power–operated tools will be approved double-insulated tools, or they will be battery operated or grounded. An inline ground-fault circuit interrupter (GFCI) will be used with electrically powered equipment and tools unless tools are double insulated or battery operated.

5.2 The ground plug will not be removed from power tools and extension cords. Power tools and extension cords will be equipped with dead front plugs.

5.3 Extension cords will be protected from damage (e.g., being cut through or run over), and they must not create a trip hazard. Extension cords will not be run through doors, windows, or floor openings. Extension cords must be inspected before use.

5.4 Tools will not be hoisted or lowered by their electrical cords.

5.5 Workers will unplug electrical tools from the power source when changing attachments and making minor adjustments or repairs. Workers will keep the plug of the tool's cord in sight when changing attachments or making repairs.

5.6 Electrical tools will not be used in wet areas or areas where flammable vapors may be present unless they are specifically designed for that purpose.

6.0 PNEUMATIC TOOLS

6.1 The air-supply hoses of pneumatic tools will be protected from damage by vehicles, and must not create a trip hazard. Air-supply lines carried overhead or vertically will be supported with a messenger cable or will be properly supported.

6.2 Pneumatic power tools and their hoses will be secured to prevent the tools and hoses from being disconnected. Air-supply hoses with an inside diameter greater than 1/2 inch will be wired, cabled, chained, secured, and must have a shut-off valve at the source.

6.3 Pneumatic tools will not be hoisted or lowered by their air-supply lines.

6.4 Pneumatic impact tools will have safety clips or retainers that prevent dies and tools from being accidentally expelled from the barrel.

6.5 The manufacturer's recommended safe working pressure for pneumatic tools, and their hoses, valves, pipes, filters, and other fittings will not be exceeded.

6.6 Compressed air will not be used for cleaning purposes except when the air pressure is reduced to less than 30 pounds per square inch (psi) and then only when effective chip guarding and PPE is used. Compressed air will not be used to blow dust or debris off clothing.

6.7 Pneumatic tools will be disconnected from the hose before any adjustments or repairs to it are made.

6.8 Automatic and manual safety devices (e.g., the tip of the air nailer that prevents firing without contact with the work) must be operating properly. Also, screens will be set up to protect bystanders from flying debris when chippers, air drills, or any other tools that could cause injury to others are used.

6.9 Employees shall remove their hand from the trigger when not operating the tool and lock it, if the tool is equipped with a function disable lock.

7.0 FUEL-POWERED TOOL

7.1 Fuel-powered tools will be shut off while being refueled, serviced, or maintained. Workers will make sure that a tool has had time to properly cool before trying to refuel it.

7.2 When workers are using fuel-powered tools in an enclosed space, the space will be ventilated to prevent high levels of carbon monoxide or other toxic gases from building up.

8.0 SPECIFIC POWER TOOLS

8.1 JACKHAMMERS AND ROTARY DRILLS

8.1.1 Bolts will be checked regularly to verify they have not loosened.

8.1.2 Tools must be kept sharp.

8.1.3 Chuck bushings and hammers must be in good condition.

8.1.4 Where applicable, workers using jackhammers and rotary drills will wear steel metatarsal coverings over the whole foot, not just the toe.

8.1.5 Jackhammers and rotary drills must have the following safety equipment:

- A locking mechanism on the drill bit
- An instant trigger control and automatic release
- A hand guard extending from the handle to the body of the tool

8.1.6 Where jackhammers and rotary drills are used to disturb masonry and concrete products, engineering or work practice controls will be carried out to lessen (silica) dust. When engineering or work practice controls are not possible, employees exposed to dust will use respiratory protection.

Suggested engineering controls and work practice controls for jackhammers and rotary drills include:

- Employ wet methods.
- Connect the tool to a point-of-operation dust collection system.
- Stand upwind while using these tools.
- Limit the number of workers in the work area. (Workers who are in the area must use respiratory protection.)
- Contain the work area.
- Use a ventilation system that removes and collects dust. (Workers in containment must use respiratory protection.)

8.2 CIRCULAR SAWS

8.2.1 Teeth on the upper half of the saw blade must be permanently guarded.

8.2.2 Teeth on the lower half of the saw blade must be guarded with a telescopic or hinged guard.

8.2.3 Guards will not be blocked open to prevent them from functioning.

8.2.3 Tools should not be used that have excessive broken teeth. User is

responsible for checking the blade before energizing it.

8.3 GASOLINE-POWERED SAWS

8.3.1 Gasoline-powered saws will be equipped with a switch that returns the motor to idle when released.

8.3.2 When a worker is transporting a gasoline-powered saw by hand, he or she will stop the engine, grip the saw handle, place the muffler at the side away from his or her body, and position the guide bar to the rear.

8.3.3 The chain brake will not be removed, and the handles, chain brake, chain, or covers will not be altered.

8.3.4 Workers will always start saws on the ground. The proper procedure is to engage the chain brake; place one foot through the bottom handle, hold the top handle, and pull the starter rope. Workers must not place the saw on their knees when starting it.

8.3.5 The clutch must be kept adjusted to prevent the chain drive from engaging at idle speed.

8.3.6 Workers will always use both hands to keep control of the saw and position themselves to avoid injury in case of kickback.

8.3.7 When moving from tree to tree or cut to cut, workers will activate the chain brake, remove their finger from the trigger, and keep the bar or wheel away from their body.

8.3.8 Workers will not run a saw above shoulder height.

8.3.9 Workers will keep the nose of the bar clear of nearby objects during cutting to prevent kickback.

8.3.10 Workers will not set a saw down while the blade is engaged. The engine must be stopped and the switch turned off when the saw is left unattended.

8.3.11 When a worker is using a chain saw, he or she will wear protective clothing such as protective chaps, sleeves, vests, and other protective garments as needed.

8.3.12 When saws are used to disturb masonry and concrete products, engineering or work practice controls will be carried out to lessen (silica) dust. When engineering or work practice controls are not possible, employees exposed to dust will use respiratory protection.

Suggested engineering controls and work practice controls include:

- Employ wet methods
- Connect the tool to a point-of-operation dust collection system

- Stand upwind while using these tools
- Limit the number of workers in the work area. (Workers who are in the area must use respiratory protection.)
- Contain the work area
- Use a ventilation system that removes and collects dust. (Workers in containment must use respiratory protection.)

8.4 TABLE, BENCH, AND RADIAL ARM SAWS

8.4.1 Workers will keep the table where a bench, radial arm saw or table saw is used and the surrounding area clean and clear of accumulated debris.

8.4.2 Workers will use eye and hearing protection and other appropriate protective gear when using these saws.

8.4.3 Before using a saw, workers will make sure that blade guards complete with a splitter and no kickback attachment, are in place and operating freely.

8.4.4 Saw blades must be sharp and suitable for the job.

8.4.5 "Pusher" sticks are required for ripping.

8.4.6 Saws will be turned off when not in use.

8.4.7 Workers will never reach around, over, or behind a running blade to control the stock.

8.4.8 Workers will hold the piece being cut firmly against the guide or fence, and will cut material in a single, steady pass. It is dangerous to stop the saw for any reason before the cut is completed. If for some reason a cut must be interrupted before it is completed, the blade will be turning freely and at full speed before cutting is resumed.

8.4.9 With conventional table saws, a long fence is necessary. Workers will use extension tables or roller stands and will get help from other employees as necessary when handling large stock.

8.4.10 The cutting head on radial arm saws must automatically return to the column stop when the yoke is released. Adjusting the front end of the unit slightly higher than the rear will verify that the cutting head will gently return to the column stop.

8.5 PORTABLE AND BENCH GRINDERS

8.5.1 Portable grinders will be equipped with a hood guard.

8.5.2 Workers operating a portable or bench grinder must use eye and face protection.

8.5.3 Wheels will be inspected regularly. A cracked wheel must be replaced because it may break into pieces. Wheels that are worn or are covered with debris must be replaced.

8.5.4 Verify that the RPM rating on the grinder is less than the RPM rating of the disc being used.

8.5.5 Workers will anchor bench grinders as necessary to prevent them from tipping or moving because of vibration.

8.5.6 Workers will verify that tool rests and tongue guards are in place and properly adjusted. The tool rest will be kept adjusted to a clearance not to exceed 1/8 inch between the tool rest and the surface of the wheel. The tongue guard will be adjusted to a clearance not to exceed 1/4 inch between the tongue and the surface of the wheel.

8.5.7 Cup Stone wheels are prohibited on Hausmann Construction projects.

8.6 ABRASIVE-BLADE AND CARBIDE TOOLS

8.6.1 With abrasive or carbide-tipped blades and carbide tools, it is essential the proper saw blade be selected for the particular material being worked on. The saw blade must be mounted tightly, securely, and in the correct rotation direction, according to the manufacturer's instructions.

8.6.2 When the saw blade is being mounted or changed, the power supply to the saw will be disconnected.

8.6.3 A blade guard will be used and must cover a large portion of the saw blade. The guard will be replaced when worn or damaged.

8.6.4 When running an abrasive blade tool, workers will wear eye and face protection, hearing protection, and other proper protective gear as necessary.

8.6.5 A worker running an abrasive-blade tool will position his or her body to the side of the blade, not directly behind it.

8.6.6 Jamming, grinding and extensive side pressure on the wheel must be avoided.

8.6.7 Workers must concentrate on the work surface, making sure the blade does not touch anything other than the material being cut.

8.6.8 Abrasive blades will be stored upright in a dry area, and proper maintenance procedures established by the manufacturer will be followed.

8.6.9 Where abrasive-blade tools are used to disturb masonry and concrete products, engineering or work practice controls will be carried out to

reduce (silica) dust. When engineering or work practice controls are not possible, employees exposed to dust will use respiratory protection.

Suggested engineering controls and work practice controls include:

- Employ wet methods
- Connect the tool to a point-of-operation dust collection system
- Stand upwind while using these tools
- Limit the number of workers in the work area. (Workers who are in the area must use respiratory protection.)
- Contain the work area
- Use a ventilation system that removes and collects dust. (Workers in containment must use respiratory protection.)

8.6.10 Grinders will be equipped with guards and positioned to protect the user from flying debris and lacerations

8.6.11 Grinders must be used with handles to correctly and safely maintain control during use. One hand will hold the handle and the other hand will hold the base of the grinder and trigger. Handles may only be removed in situations where the handle cannot fit in between an object.

HAND TOOLS

9.0 OBJECTIVE

The objective of this procedure is to prevent incidents related to the use of hand tools used by Hausmann Construction, Inc. personnel.

10.0 PURPOSE

This procedure shows guidelines for the safe use and maintenance of hand tools used on Hausmann Construction, Inc. projects.

11.0 CARE OF HAND TOOLS

11.1 Hand tools will be kept in a safe working condition and will be inspected before use. Defective hand tools will not be used and will be removed from service until repairs can be made.

11.2 When not in use, hand tools will be stored in suitable boxes or containers or will be hung on racks. Tools will not be left in walkways or other places where there is a chance the tool will fall or create a tripping hazard. Cutting edges will be protected and tools will not be left where they will roll off benches or tables. Storage areas will be kept free from moisture to prevent corrosion.

11.3 Damaged or worn hand tools will be quickly and properly repaired. Temporary and makeshift repairs are restricted. If tools cannot be repaired on-the-job, they

will be sent to the factory or a shop for repairs. Tools that cannot be repaired will be discarded.

11.4 Hand tools will be protected against corrosion damage. Amassed grease, dirt, sawdust, and moisture will be quickly removed, and power tools will be cleaned thoroughly when necessary with a nonflammable, nonirritating solvent and wiped clean. Moving and adjustable parts will be greased as necessary.

11.5 Hand tools must be kept sharp to improve accuracy and safety. Oilstones or grindstones will be used for sharpening tools. If an abrasive wheel must be used for sharpening tools, workers will grind only a small amount at a time with the tool rest not more than one-eighth of an inch from the surface of the wheel. Workers will dip the tool often in water to keep it cool.

12.0 SAFE USE OF HAND TOOLS

12.1 Employees who use hand tools will be provided with and required to wear personal protective equipment (PPE), such as gloves, eye protection, to protect them from the hazards involved. Employees will be given instruction or training in the proper use of hand tools.

12.2 Hand tools will be selected based on their weight and size and the tool needed for the job. Hand tools will not be used for anything other than their intended purpose and will not be altered or adapted.

12.3 Handles must be tightly fitted. Workers will check wood handles carefully and tighten them with wedges when necessary. Workers will also inspect handles for splitting and cracking.

12.4 Workers will exercise extreme caution when working around electrical circuits, and will use insulated and nonconducting tools inspected periodically by a qualified technician.

12.5 Workers will use nonsparking tools in the presence of flammable materials, explosive dusts, and vapors.

13.0 SPECIFIC HAND TOOLS

13.1 UTILITY KNIVES

The following safety precautions for utility knives will be followed:

- The use of utility knives with self-retractable blades will be considered
- Always cut away from the body, especially away from the hands
- Do not carry a utility knife in garment pockets; carry it in a sheath

13.2 WRENCHES

The following safety precautions for wrenches will be observed:

- Select the correct size and wrench type for each job

- Do not extend the wrench handle with a pipe or cheater bar
- Never use a hammer to strike a wrench handle unless the wrench is equipped with a striking face
- Keep jaw corrugations on wrenches sharp and clean, and keep handles and adjusting screws in good condition
- Never use conventional sockets with air impact wrenches

13.3 CHISELS AND BULL POINTS

The following safety precautions for chisels and bull points will be observed:

- Select the proper chisel for the material being cut; the chisel will be large enough for the job and will be driven with a hammer of enough weight
- Hold the chisel with a steady but relaxed grip or use a chisel holder. Use tongs when holding a chisel being struck by another person
- Keep your eyes on the cutting edge of the chisel
- Wear eye and face protection when chiseling
- Chisels will be kept free of mushroomed heads, and the cutting edge will be kept sharp. Preserve original shape and angle of cutting edge when sharpening chisels

13.4 SCREWDRIVERS

The following safety precautions for screwdrivers will be followed:

- Select the proper screwdriver to fit the size of screw
- Do not use screwdrivers as chisels, pry bars, or for anything other than its intended purpose
- Do not grind a screwdriver to a fine point to fit “all” screw heads
- Keep the tip properly ground and squared across
- The handle must fit the shank tightly

13.5 HANDSAWS

The following safety precautions for handsaws will be observed:

- Select a saw of the proper shape and size with the correct teeth for the size cut to be made and the material to be cut
- Keep the teeth and blade properly set. Protect the teeth from damage when not in use
- Hold the saw firmly and start the cut slowly to prevent the blade from jumping
- Check the material being cut for nails, knots, or other objects that may damage the saw or cause it to buckle
- Hold the pieces being cut firmly in place. If long pieces are being cut, use a helper or supporting bench to prevent pinching of the saw at the cut

13.6 HAMMERS

The following safety precautions for hammers will be followed:

- Select the proper size and weight hammer for the job
- Strike the surface being hit squarely to decrease the chance of hitting a glancing blow
- Do not strike one hammer against another
- Control the hammer by holding it at the end of the handle, which will increase the force of the blow
- Wear eye protection when you are striking objects such as chisels and punches.
- Use a ball peen hammer or mallet to strike chisels and punches. Do not use a claw hammer for this task
- Check wooden handles for a tight fit and for splitting and cracking. Do not use a hammer with a loose or worn head
- Never drive a screw with a hammer

13.7 PLIERS

The following safety precautions for pliers will be followed:

- Use pliers only when no other tool will do the job
- Never use pliers as wrenches or nail pullers
- Use insulated pliers for electrical work
- Use cutting pliers for cutting soft metals only, never hard metals
- When cutting metal or plastic straps, secure the ends, because the straps are under tension and can fly back and hit you
- When pulling with pliers, pull down and away to not hit yourself in the face

13.8 SHOVELS

The following safety precautions for shovels will be followed:

- Select the proper size and shape shovel for the job
- Check shovel handles for cracks, splits, and splinters before using it
- Check shovel blade to verify it is sharp and free from jagged and split edges before using it

13.9 PICKS

The following safety precautions for picks will be followed:

- Make sure that pick handles are free of splitters, splits, and cracks and the head is firmly joined to the handle before using it
- Check areas behind and around you for clearance before swinging

13.10 HATCHETS, AXES, AND ADZES

The followings safety precautions for hatchets, axes, and adzes must be followed:

- Prevent hatchets and axes from rebounding toward other workers
- When trimming a tree on the ground, keep the trunk between the swing of the tool and your feet and legs. Clear enough space for the swing
- When using an adze, spread your legs and keep the object to be trimmed between your knees

13.11 HAND TRUCKS AND WHEELBARROWS

The following safety precautions for hand trucks and wheelbarrows will be followed:

- Select proper hand trucks and wheelbarrows for the job
- Make sure the frames are strong enough and straight. Hand protection or handle guards will be used. The wheels will be strong and well secured to the frame
- Exercise extreme care around ramps and walkways. Carefully plan wheelbarrow traffic to avoid accidents
- Do not try to catch or support a wheelbarrow that is tipping. To avoid injury, let it tip
- If hand trucks or wheelbarrows are to be used on ramps and decks, those ramps and decks must be strong enough to support the weight being carried by the hand truck or wheelbarrow

13.12 JACKS

The following safety precautions for jacks will be followed:

- Select jacks strong enough to raise and hold the load
- The rate load capacity of the jack must be readable and permanently marked on the jack
- Swivel heads and caps must be in good condition and work properly before using the jack
- Position the jack on a firm, level foundation. Be sure the jack cannot tip and is in line with the vertical movement of the load
- After raising a load, securely block it before removing the jack. Crib any load that must remain in a raised position for any time. Such loads will be cribbed or blocked, or both, before personnel can work under the load
- Clean and grease jacks regularly and protect them from moisture and damage
- Inspect jacks thoroughly before use. Do not use defective jacks, and tag defective jacks as “Out of Service”
- Only qualified service technicians will make repairs to damaged jacks

14.0 CARRYING TOOLS

14.1 Workers will never carry pointed tools such as screwdrivers and chisels point up in any pocket, nor will workers carry them point down in front pockets. Tools will be hand carried with the point or sharp edge held away from the body or carried in a toolbox, tool pouch, or special tool belt.

14.2 Workers must not carry tools in a way that interferes with their ability to use both hands if they are climbing a ladder. Tools will be raised or lowered by rope (or in a bucket if necessary).

14.3 Tool belts will be equipped with suspenders to support the weight of the belt. If the tool belt is excessively heavy, some tools must be removed to lighten the load.

14.4 Consider the use of tool lanyards when working at heights.

22.00 RESPIRATORY PROTECTION

1.0 OBJECTIVE

It is the intention of Hausmann Construction, Inc. to provide a respirator protection program (RPP) that meets or exceeds all federal standards. Hausmann Construction, Inc. will attempt to engineer potential harmful vapors and oxygen deficient atmosphere exposure hazards out of the work environment. If engineering control measures are not likely or during emergency situations with high exposure, respirators will be provided which are applicable and suitable for the purpose intended.

2.0 PURPOSE

This procedure applies to all Hausmann Construction, Inc. operations. When work is performed on a non-owned or operated site, the operator's program will take precedence, however, this document covers Hausmann Construction, Inc. employees and contractors and will be used on owned premises, or when an owner or operator's program does not exist or is less stringent.

3.0 RESPIRATORY PROGRAM ADMINISTRATOR

Overall responsibility for the RPP is assigned to the Hausmann Construction, Inc. safety department or the site health and safety representative in order to ensure that specific requirements are followed.

The administrator must be knowledgeable of the complexity of the program, be able to conduct evaluations and have the proper training.

This assignment is made, however, with the understanding that individual supervisors will have to implement and enforce major portions of the program. It is understood that the program administrator will report performance problems to the appropriate manager for resolution. The person who will have responsibility for administering all the aspects of this program will be the project manager or their designee.

The responsibilities of the program administrator will include, but are not limited to:

- Ensuring an adequate supply of respirators, cartridges, and repair or replacement parts. The program administrator may delegate this duty but will retain overall responsibility. The person(s) to whom this duty has been delegated is the project manager or project superintendent.
- Identifying hazards and ensuring only National Institute for Occupational Safety and Health (NIOSH) certified respirators must be selected and provided based on those hazards and factors affecting performance.
- Ensuring that all respirator users have been trained in the use, selection and limitations of the type of respirators they will be using prior to the first time the respirator must be used. While the duty of conducting the training may be delegated,

the program administrator retains final responsibility for seeing that all employees are appropriately trained.

- Ensuring that all respirator users have been medically evaluated and found fit to use the type of respirators that will be required in their job. The medical evaluation must be completed prior to assigning any employee to a task that requires use of a respirator.
- Ensuring that all respirator users are fit-tested at least annually and more often if other federal requirements apply.
- Ensuring that respirators are individually issued, are cleaned and sanitized on a regular basis and respirators are stored in a clean and accessible location. This duty may also be delegated but the program administrator retains final responsibility for seeing that it is done.
- Ensuring that respirators are selected based on the hazard that will be encountered. This program describes the basic respirators that will be used at this site and the tasks for which they will be required. In special circumstances, the program administrator will contact the corporate health and safety staff for guidance in selecting the correct respirator.
- Ensuring that employee exposure is monitored to assure correct respirator type is used. Exposure monitoring may be delegated to others; however, the program administrator has final responsibility of monitoring completion and to request assistance when necessary.
- Ensuring surveillance of employees who wear respirators will leave the area to wash, change cartridges or if they detect break through or resistance.
- Ensuring that the elements of the RPP for the selection, use, cleaning and maintenance, storage and fit-testing of respirators are followed.
- Ensuring that respirator parts are not exchanged between brands of respirators.
- Ensuring medical evaluations, respirators and required training are provided at no cost to the employee.

4.0 MEDICAL REQUIREMENTS

4.1. GENERAL

Hausmann Construction, Inc. will provide a medical evaluation to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace. Hausmann Construction, Inc. may discontinue an employee's medical evaluations when the employee is no longer required to use a respirator.

4.2. MEDICAL EVALUATION PROCEDURES

Hausmann Construction, Inc. will identify a physician or other licensed health care professional (PLHCP) to perform medical evaluations using a medical questionnaire or an initial medical examination that obtains the same information as the medical questionnaire. The medical evaluation will obtain the information requested by the Hausmann Construction, Inc. medical questionnaire form or equivalent (found on final page of this document).

The medical evaluation prior to fit-testing will be confidential, conducted during normal working hours, be at a convenient time and location, be understandable and the employee will be given a chance to discuss the results with the PLHCP.

4.3. SUPPLEMENTAL INFORMATION FOR THE PLHCP

The following information must be provided to the PLHCP before the PLHCP makes a recommendation concerning an employee's ability to use a respirator:

- The type and weight of the respirator to be used by the employee
- The duration and frequency of respirator use (including use for rescue and escape)
- The expected physical work effort
- Additional protective clothing and equipment to be worn; and
- Temperature and humidity extremes that may be encountered

Hausmann Construction, Inc. will provide the PLHCP with a copy of the Hausmann Construction, Inc. Respiratory Protection Program (RPP).

Note: When Hausmann Construction, Inc. replaces a PLHCP, Hausmann Construction, Inc. must ensure that the new PLHCP obtains this information, either by providing the documents directly to the PLHCP or having the documents transferred from the former PLHCP to the new PLHCP. However, OSHA does not expect employers to have employees medically evaluated solely because a new PLHCP has been selected.

4.4. MEDICAL DETERMINATION

In determining the employee's ability to use a respirator, Hausmann Construction, Inc. will obtain a written recommendation regarding the employee's ability to use the respirator from the PLHCP. The recommendation will provide only the following information:

- Any limitations on respirator use related to the medical condition of the employee, or relating to the workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use the respirator
- The need, if any, for follow-up medical evaluations; and
- A statement that the PLHCP has provided the employee with a copy of the PLHCP's written recommendation

All recommendations are to be sent to the Hausmann Construction, Inc. Safety Department.

4.5. ADDITIONAL MEDICAL EVALUATIONS

At a minimum, Hausmann Construction, Inc. will provide additional medical evaluations that comply with the requirements of this program if:

- An employee reports medical signs or symptoms that are related to the ability to use a respirator
- A PLHCP, supervisor, or the respirator program administrator informs Hausmann

Construction, Inc. that an employee needs to be re-evaluated

- Information from the RPP, including observations made during fit testing and program evaluation, indicates a need for employee reevaluation; or
- A change occurs in workplace conditions (e.g., physical work effort, protective clothing, and temperature) that may result in a substantial increase in the physiological load placed on an employee

5.0 WORK SITE PROCEDURES

Each work site where respirators are required to protect the health of the worker will have work site procedures that follow the guidelines of this program. The following areas will be included:

- Identification of specific hazard requiring respiratory protection
- The selection of the appropriate respiratory protection equipment based on the specific hazard and concentration levels, characteristics, etc. Specific brand and models of respiratory equipment to be used will be identified in the procedures.
- Verification that each user of respiratory protection is qualified (medical approval, current fit test, annual training and demonstrates competency).

6.0 RESPIRATOR SELECTION CRITERIA

The selection of the respiratory equipment is based on the hazards the employee is exposed to. Hausmann Construction will:

- Perform hazard identification
- Select and provide respirators based on those hazards and factors affecting performance
- Establish brands and models to be used, and
- Estimate exposures and contaminant information

6.1. HAZARD IDENTIFICATION

Due to the many varied work locations, Hausmann Construction, Inc.'s identification of respiratory hazards will be contained in the various work site specific safety plans. However, common respiratory hazards that will be encountered include:

- Dust
- Fumes
- Gases
- Chemical particles
- Oxygen deficiency

Characteristics of Hazardous Operation or Process

- Hot operations: welding, chemical reactions, soldering, melting, melding and burning

- Liquid operations: painting, degreasing, dipping, spraying, brushing, coating, etching, cleaning, pickling, plating, mixing, galvanizing and chemical reactions
- Solid operations: pouring, mixing, separations, extraction, crushing, conveying, loading, bagging and demolition
- Pressurized spraying: cleaning parts, applying pesticides, degreasing, sandblasting and painting
- Shaping operations: cutting, grinding, filing, milling, melding, sawing and drilling

Gaseous Contaminants

- Inert gases (helium, argon, etc.), which do not metabolize in the body but displace air to produce an oxygen deficiency
- Acid gases (SO2, H2S, HCl, etc.) which are acids or produce acids by reaction with water
- Alkaline gases (NH3, etc.), which are alkalis or produce alkalis by reaction with water
- Organic gases (butane, acetone, etc.), which exist as true gases or vapors from organic liquids
- Organometallic gases (tetraethyl lead, organo-phosphates, etc.), which have metals attached to organic groups

Particulate contaminants

- Dusts are mechanically generated solid particulates (0.5 to 10µm)
- Fumes are solid condensation particles of small diameter (0.1 to 1.0 µm)
- Mists are liquid particulate matter (5 to 100 µm)
- Smoke is chemically generated particulates (solid and liquid) of organic origins (0.01 to 0.3 µm)

6.2. SELECTION OF RESPIRATOR

The following factors will be taken into account when selecting the proper respirator:

Concentration and Type of Contaminant

The concentration and type of contaminant will determine the model and type of respirator and cartridges/filters or filters to be used. The concentration is based on a sampling of the atmosphere.

Location of Hazardous Area

(Confined Space, nearby contaminants, etc.)

Worker Activity

(Extreme heat, cold, welding hood requirement, etc.)

Types of Respirators

Air-purifying respirators can be either full-face or half masks with mechanical or chemical cartridges to filter dusts, mists, fumes, vapors or gases.

Powered air-purifying respirators use a blower to pass the contaminated air through a filter. The purified air is then delivered into a mask or hood. They filter dusts, mists, fumes, vapors and gases, just like ordinary air-purifying respirators.

Air-purifying respirators cannot be used in oxygen-deficient atmospheres, which can result when another gas displaces the oxygen or consumption of oxygen by a chemical reaction occurs. Oxygen levels below 19.5% require either a source of supplied air or supplied-air respirator protection. Levels below 16% are considered to be unsafe and could cause death. To determine the proper cartridge for air-purifying respirators contact the Hausmann Construction, Inc. safety manager or a qualified project safety representative of the client. You will also consult the safety data sheet of the substance that needs to be filtered.

All cartridges are assigned a color designating the type of contaminant they will filter:

White:	Acid gas
Black:	Organic vapors
Green:	Ammonia gas
Yellow:	Acid gas and organic vapors
Purple:	Radioactive materials
Orange:	Dust, fumes and mists
Olive:	Other gases and vapors

Once the wearer of the respirator can detect an odor, irritation, or taste of the contaminant, the cartridge will be replaced. Cartridges and filters will be changed at the beginning of each shift.

Supplied-air respirators provide the highest level of protection against highly toxic and unknown materials. Supplied air refers to self-contained breathing apparatuses (SCBAs) and air-line respirators. SCBAs have a limited air supply that is carried by the user, allowing for good mobility and fewer restrictions than air-line respirators.

- Air-line respirators have an air hose that is connected to a fresh air supply from a central source. The source can be from a compressed air cylinder or air compressor that provides at least grade D breathing air
- Emergency escape breathing apparatuses (EEBAs) provide oxygen for 5, 10 or 15 minutes depending on the unit. These are for emergency situations in which an employee must escape from environments immediately dangerous to life or health (IDLH)
- Self-contained breathing apparatus (SCBA) - Hausmann Construction, Inc. does NOT allow employees to work in an immediately dangerous to life and health (IDLH) environment

In order to maintain the NIOSH and MSHA approval of any respirator, mixing parts from other respirator manufacturers is prohibited. This includes airline hoses, valves,

gaskets, cartridges, etc. For example, do not use North cartridges or valve gaskets with an MSA product.

6.3. BRAND AND MODELS

Hausmann Construction, Inc. will only use NIOSH-certified respirators. Respirators will be used in compliance with the conditions of the certification of its RPP (fit testing model, no mixing of different manufacturer parts, cartridges, filters, etc.).

The specific model will be based on the hazard, concentration of contaminant, oxygen level, work environment and type of work being performed. To aid in the selection process the following will be used to identify the proper respiratory equipment for the work being performed and hazard that is present.

- NIOSH Pocket Guide to Chemicals; North Cartridge Selection Guide; North Respirator Selection Guide

6.4. ESTIMATE OF EXPOSURES AND CONTAMINANT INFORMATION

- No employee will enter an IDLH environment
- No employee will be exposed to an atmosphere containing concentrations that would exceed the short-term exposure limit (STEL) or permissible exposure limits (PEL) for the identified atmospheric hazard

7.0 RESPIRATOR FIT TESTING

Before an employee may be required to use any respirator with a negative or positive pressure tight-fitting face piece, the employee must be fit tested with the same make, model, style, and size of respirator that will be used. This section specifies the kinds of fit tests allowed, the procedures for conducting them, and how the results of the fit tests must be used.

Respirator users are fit-tested at least annually and more often if other federal requirements apply.

Supplied air respirators are required to be fit tested as well.

Hausmann Construction, Inc. will ensure that employees using a tight-fitting face piece respirator pass an appropriate qualitative fit test (QLFT) or quantitative fit test (QNFT) as stated in this program.

Hausmann Construction, Inc. will ensure that an employee using a tight-fitting face piece respirator is fit tested prior to initial use of the respirator, whenever a different respirator face piece (size, style, model or make) is used, and at least annually thereafter.

Hausmann Construction, Inc. will conduct an additional fit test whenever the employee reports, or PLHCP, supervisor makes visual observations of, changes in the employee's physical condition that could affect respirator fit. Such conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.

If after passing a QLFT or QNFT, the employee subsequently notifies Hausmann Construction supervisor, or PLHCP that the fit of the respirator is unacceptable, the employee will be given a reasonable opportunity to select a different respirator face piece and to be retested.

The fit test will be administered using an OSHA-accepted QLFT or QNFT protocol. The OSHA-accepted QLFT and QNFT protocols and procedures are contained in this section.

QLFT may only be used to fit test negative pressure air-purifying respirators that must achieve a fit factor of 100 or less. Half face air filtering respirators may be fit tested with irritant smoke while full face air filtering respirators require Portacount fit testing.

If the fit factor, as determined through an OSHA-accepted QNFT protocol, is equal to or greater than 100 for tight-fitting half face pieces, or equal to or greater than 500 for tight-fitting full face pieces, the QNFT has been passed with that respirator.

Fit testing of tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators will be accomplished by performing quantitative or qualitative fit testing in the negative pressure mode, regardless of the mode of operation (negative or positive pressure) that is used for respiratory protection.

Qualitative fit testing of these respirators will be accomplished by temporarily converting the respirator user's actual face piece into a negative pressure respirator with appropriate filters, or by using an identical negative pressure air-purifying respirator face piece with the same sealing surfaces as a surrogate for the atmosphere-supplying or powered air-purifying respirator face piece.

Quantitative fit testing of these respirators will be accomplished by modifying the face piece to allow sampling inside the face piece in the breathing zone of the user, midway between the nose and mouth. This requirement will be accomplished by installing a permanent sampling probe onto a surrogate face piece, or by using a sampling adapter designed to temporarily provide a means of sampling air from inside the face piece.

Any modifications to the respirator face piece for fit testing will be completely removed, and the face piece restored to NIOSH-approved configuration, before that face piece can be used in the workplace.

7.1. FIT TEST PROCEDURES

The requirements in this section apply to all OSHA-accepted fit test methods, both QLFT and QNFT.

The employee will be allowed to pick the most acceptable respirator from a sufficient number of respirator sizes so that the respirator is acceptable to, and correctly fits, the user.

Prior to the selection process, the employee will be shown how to put on a respirator, how it will be positioned on the face, how to set strap tension and how to determine an acceptable fit. A mirror will be available to assist the subject in evaluating the fit and

positioning of the respirator. This instruction may not constitute the subject's formal training on respirator use, because it is only a review.

The employee will be informed that he/she is being asked to select the respirator that provides the most acceptable fit. Each respirator represents a different size and shape, and if fitted and used properly, will provide adequate protection.

The employee will be instructed to hold each chosen face piece up to the face and eliminate those that obviously do not give an acceptable fit.

The more acceptable face pieces are noted in case the one selected proves unacceptable; the most comfortable mask is donned and worn at least five minutes to assess comfort. Assistance in assessing comfort can be given by discussing the following points:

- If the employee is not familiar with using a particular respirator, the employee will be directed to don the mask several times and to adjust the straps each time to become adept at setting proper tension on the straps
- Position of the mask on the nose
- Room for eye protection
- Room to talk
- Position of mask on face and cheeks

The following criteria will be used to help determine the adequacy of the respirator fit:

- Chin properly placed
- Adequate strap tension, not overly tightened
- Fit across nose bridge
- Respirator of proper size to span distance from nose to chin
- Tendency of respirator to slip
- Self-observation in mirror to evaluate fit and respirator position

Use the Fit Test form.

User Seal Check

Before conducting the negative and positive pressure checks, the subject will be told to seat the mask on the face by moving the head from side-to-side and up and down slowly while taking in a few slow deep breaths. The test subject will conduct a user seal check, either the negative or positive pressure seal checks described below:

Positive Pressure Check

Close off the exhalation valve and exhale gently into the face piece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the face piece without any evidence of outward leakage of air at the seal. For most respirators this method of leak testing requires the wearer to first remove the exhalation valve cover before closing off the exhalation valve and then carefully replacing it after the test.

Negative Pressure Check

Close off the inlet opening of the canister or cartridge(s) by covering with the palm of the hand(s) or by replacing the filter seal(s), inhale gently so that the face piece collapses slightly, and hold the breath for ten seconds. The design of the inlet opening of some cartridges cannot be effectively covered with the palm of the hand. The test can be performed by covering the inlet opening of the cartridge with a thin latex or nitrile glove. If the face piece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

The test will not be conducted if there is any hair growth between the skin and the face piece sealing surface, such as stubble beard growth, beard, moustache or sideburns which cross the respirator sealing surface. Any type of apparel which interferes with a satisfactory fit will be altered or removed, including glasses.

If a test subject exhibits difficulty in breathing during the tests, she or he will be referred to a physician or other licensed health care professional, as appropriate, to determine whether the test subject can wear a respirator while performing her or his duties. If the employee finds the fit of the respirator unacceptable, the test subject will be given the opportunity to select a different respirator and to be retested.

Before commencement of the fit test, the test subject will be given a description of the fit test and the test subject's responsibilities during the test procedure. The description of the process will include a description of the test exercises that the subject will be performing. The respirator to be tested will be worn for at least 5 minutes before the start of the fit test.

The fit test will be performed while the test subject is wearing any applicable safety equipment that may be worn during actual respirator use which could interfere with respirator fit.

Test Exercises

Each test exercise will be performed for one minute except for the grimace exercise which will be performed for 15 seconds. The test subject will be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator will be tried. If because of medical or health conditions the employee cannot perform the test exercises the fit test will not be performed and the employee not allowed to use a respirator until all elements of the fit test can be achieved.

The respirator will not be adjusted once the fit test exercises begin. Any adjustment voids the test, and the fit test must be repeated.

The following test exercises are to be performed for all fit testing methods prescribed in this procedure:

- Normal breathing. In a normal standing position, without talking, the subject will breathe normally

- Deep breathing. In a normal standing position, the subject will breathe slowly and deeply, taking caution so as not to hyperventilate
- Turning head side to side. Standing in place, the subject will slowly turn his or her head from side to side between the extreme positions on each side. The head will be held at each extreme momentarily so the subject can inhale at each side
- Moving head up and down. Standing in place, the subject will slowly move his or her head up and down. The subject will be instructed to inhale in the up position (i.e., when looking toward the ceiling)
- Talking. The subject will talk out loud slowly and loud enough so as to be heard clearly by the test conductor. The subject will read from the "Rainbow Passage"

Rainbow Passage

"When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow." Continue to read for one minute.

- Grimace. The test subject will grimace by smiling or frowning. (This applies only to QNFT testing; it is not performed for QLFT)
- Jogging in place. The test subject will jog in place being careful to be aware of their surroundings
- Normal breathing

7.2. QUALITATIVE FIT TEST (QLFT) PROTOCOLS

Hausmann Construction will ensure that persons administering QLFT are able to prepare test solutions, calibrate equipment and perform tests properly, recognize invalid tests, and ensure that test equipment is in proper working order. Hausmann Construction will ensure that QLFT equipment is kept clean and well maintained so as to operate within the parameters for which it was designed.

Irritant Smoke (Stannic Chloride) Protocol

This qualitative fit test uses a person's response to the irritating chemicals released in the ``smoke'' produced by a stannic chloride ventilation smoke tube to detect leakage into the respirator.

The respirator to be tested will be equipped with high efficiency particulate air (HEPA) or P100 series filter(s).

Only stannic chloride smoke tubes will be used for this protocol. No form of test enclosure or hood for the test subject will be used.

The smoke can be irritating to the eyes, lungs, and nasal passages. The test conductor will take precautions to lessen the test subject's exposure to irritant smoke. Sensitivity varies, and certain individuals may respond to a greater degree to irritant smoke. Care will be taken when performing the sensitivity screening checks that determine whether the test subject can detect irritant smoke to use only the minimum amount of smoke necessary to elicit a response from the test subject.

The fit test will be performed in an area with adequate ventilation to prevent exposure of the person conducting the fit test or the build-up of irritant smoke in the general atmosphere.

The person to be tested must demonstrate his or her ability to detect a weak concentration of the irritant smoke.

- The test operator will break both ends of a ventilation smoke tube containing stannic chloride, and attach one end of the smoke tube to a low flow air pump set to deliver 200 milliliters per minute, or an aspirator squeeze bulb. The test operator will cover the other end of the smoke tube with a short piece of tubing to prevent potential injury from the jagged end of the smoke tube
- The test operator will advise the test subject that the smoke can be irritating to the eyes, lungs, and nasal passages and instruct the subject to keep his/her eyes closed while the test is performed
- The test subject will be allowed to smell a weak concentration of the irritant smoke before the respirator is donned to become familiar with its irritating properties and to determine if he/she can detect the irritating properties of the smoke. The test operator will carefully direct a small amount of the irritant smoke in the test subject's direction to determine that he/she can detect it

Irritant Smoke Fit Test Procedure

- The person being fit tested will don the respirator without assistance, and perform the required user seal check(s)
- The test subject will be instructed to keep his or her eyes closed if wearing a half face respirator
- The test operator will direct the stream of irritant smoke from the smoke tube toward the face seal area of the test subject, using the low flow pump or the squeeze bulb. The test operator will begin at least 12 inches from the face piece and move the smoke stream around the whole perimeter of the mask. The operator will gradually make two more passes around the perimeter of the mask, moving to within six inches of the respirator
- If the person being tested has not had an involuntary response and detected the irritant smoke, proceed with the test exercises
- The exercises identified in the test exercises of this procedure will be performed by the test subject while the respirator seal is being continually challenged by the smoke, directed around the perimeter of the respirator at a distance of six inches
- If the person being fit tested reports detecting the irritant smoke at any time, the test

is failed. The person being retested must repeat the entire sensitivity check and fit test procedure

- Each test subject passing the irritant smoke test without evidence of a response (involuntary cough, irritation) will be given a second sensitivity screening check, with the smoke from the same smoke tube used during the fit test, once the respirator has been removed, to determine whether he/she still reacts to the smoke. Failure to evoke a response will void the fit test
- If a response is produced during this second sensitivity check, then the fit test is passed. The glass tube will be disposed of properly

7.3. QUANTITATIVE FIT TEST (QNFT) PROTOCOLS

Using controlled negative pressure and appropriate instrumentation to measure the volumetric leak rate of a face piece to quantify the respirator have been demonstrated to be acceptable to OSHA.

Hausmann Construction, Inc. will ensure that persons administering QNFT are able to calibrate equipment and perform tests properly, recognize invalid tests, calculate fit factors properly and ensure that test equipment is in proper working order.

Hausmann Construction, Inc. will ensure that QNFT equipment is kept clean, and is maintained and calibrated according to the manufacturer's instructions so as to operate at the parameters for which it was designed.

Portacount Fit Test Requirements

- Check the respirator to make sure the respirator is fitted with a high-efficiency filter and that the sampling probe and line are properly attached to the face piece
- Instruct the person to be tested to don the respirator for five minutes before the fit test starts. This purges the ambient particles trapped inside the respirator and permits the wearer to make certain the respirator is comfortable. This individual will already have been trained on how to wear the respirator properly
- Check the following conditions for the adequacy of the respirator fit: chin properly placed; Adequate strap tension, not overly tightened; fit across nose bridge; respirator of proper size to span distance from nose to chin; tendency of the respirator to slip; self-observation in a mirror to evaluate fit and respirator position
- Have the person wearing the respirator do a user seal check. If leakage is detected, determine the cause. If leakage is from a poorly fitting face piece, try another size of the same model respirator, or another model of respirator
- Follow the manufacturer's instructions for operating the Portacount and proceed with the test
- The test subject will be instructed to perform the exercises in test exercises section of this procedure
- After the test exercises, the test subject will be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator will be tried

Portacount Test Instrument

The Portacount will automatically stop and calculate the overall fit factor for the entire set of exercises. The overall fit factor is what counts. The pass or fail message will indicate whether or not the test was successful. If the test was a pass, the fit test is over. Since the pass or fail criterion of the Portacount is user programmable, the test operator will ensure that the pass or fail criterion meet the requirements for minimum respirator performance.

A record of the test needs to be sent to the safety director or human resources director or appointed designee and kept on file, assuming the fit test was successful. The record must contain the test subject's name; overall fit factor; make, model, style, and size of respirator used; and date tested.

8.0 USE, MAINTENANCE AND CARE OF RESPIRATORS

This section requires Hausmann Construction, Inc. to provide for the use, cleaning and disinfecting, storage, inspection, and repair of respirators used by its employees. APPENDIX B FROM THE OSHA RESPIRATORY PROTECTION STANDARD - RESPIRATOR CLEANING procedures (mandatory) will be followed.

8.1. USE

- Items that can affect the face to mask seal are prohibited. This includes facial hair, glasses, clothing, etc.
- Each time a respirator is put on a positive and negative pressure check will be performed

8.2. CLEANING AND DISINFECTING REQUIREMENTS

Hausmann Construction, Inc. will provide each respirator user (our Employee's only) with a respirator that is clean, sanitary, and in good working order. Hausmann Construction, Inc. will ensure that respirators are cleaned and disinfected using the procedures in this RPP, or procedures recommended by the respirator manufacturer, provided that such procedures are of equivalent effectiveness. The respirators will be cleaned and disinfected at the following intervals:

- Respirators issued for the exclusive use of an employee will be cleaned and disinfected by the employee as often as necessary to be maintained in a sanitary condition
- Respirators used in fit testing and training will be cleaned and disinfected after each use by the health and safety representative or designated alternate
- Each individual who is assigned a cartridge respirator is responsible for seeing that the respirator is cleaned, inspected and properly stored

8.3. CLEANING PROCEDURES

- Remove filters, cartridges, or canisters. Disassemble face pieces by removing speaking diaphragms, demand and pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective

parts.

- Wash components in warm water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.
- Rinse components thoroughly in clean, warm, preferably running water. Drain.
- When the cleaner used does not contain a disinfecting agent, respirator components will be immersed for two minutes in commercially available cleansers of equivalent disinfectant quality. Another alternative is to use wipes containing alcohol that are intended for use with respirators.
- Rinse components thoroughly in clean, warm, preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on face pieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.
- Components will be hand-dried with a clean lint-free cloth or air dried. Reassemble face piece, replacing filters, cartridges, and canisters where necessary. Test the respirator to ensure that all components work properly.
- Follow manufactures recommendations

8.4. STORAGE AND INSPECTION

- Respiratory equipment will be stored in a manner to protect it from damage, contamination, temperature extreme, etc.
- Respiratory equipment intended for emergency use will be stored in an area that is readily accessible and be clearly marked.

Hausmann Construction, Inc. will ensure that respirators are inspected as follows:

- All respirators used in routine situations will be inspected by the employee before each use and during cleaning
- A check by the employee of respirator function, tightness of connections, and the condition of the various parts including, but not limited to, the face piece, head straps, valves, connecting tube, and cartridges, canisters or filters
- A check of elastomeric parts for pliability and signs of deterioration
- Emergency respiratory equipment will be inspected at least monthly, and before and after each use
- Escape only respiratory equipment will be inspected before being carried into workplace

8.5. BREATHING AIR QUALITY AND USE

Hausmann Construction, Inc. will ensure that compressed air accords with the following specifications:

- Compressed breathing air will meet at least the requirements for Type 1-Grade D breathing air described in ANSI and Compressed Gas Association Commodity Specification for Air, G-7.1-1989, to include:

- Oxygen content (v/v) of 19.5-23.5%
- Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less
- Carbon monoxide (CO) content of 10 ppm or less
- Carbon dioxide (CO2) content of 1,000 ppm or less and
- Lack of noticeable odor

- Hausmann Construction, Inc. will ensure that oxygen is not used in compressed air units
- Hausmann Construction, Inc. will ensure that oxygen concentrations greater than 23.5% are used only in equipment designed for oxygen service or distribution
- Hausmann Construction, Inc. will ensure that cylinders used to supply breathing air to respirators meet DOT requirements and that:
  - Cylinders are tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR part 173 and part 178)
  - Cylinders of purchased breathing air have a certificate of analysis from the supplier that the breathing air meets the requirements for Type 1--Grade D breathing air; and
  - The moisture content in the cylinder does not exceed a dew point of -50 deg. F (-45.6 deg. C) at 1 atmosphere pressure

- Hausmann Construction, Inc. will ensure that compressors used to supply breathing air to respirators are constructed and situated so as to:
  - Prevent entry of contaminated air into the air-supply system
  - Lessen moisture content so that the dew point at 1 atmosphere pressure is 10 degrees F (5.56 deg. C) below the ambient temperature
  - Have suitable in-line air-purifying sorbent beds and filters to further ensure breathing air quality. Sorbent beds and filters will be maintained and replaced or refurbished periodically following the manufacturer's instructions

- Have a tag containing the most recent change date and the signature of the person authorized by Hausmann Construction, Inc. to perform the change. The tag will be maintained at the compressor
- For compressors that are not oil-lubricated, Hausmann Construction, Inc. will ensure that carbon monoxide levels in the breathing air do not exceed 10 ppm
- For oil-lubricated compressors, Hausmann Construction, Inc. will use a high-temperature or carbon monoxide alarm, or both, to monitor carbon monoxide levels. If only high-temperature alarms are used, the air supply will be monitored at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm
- Hausmann Construction, Inc. will ensure that breathing air couplings are incompatible with outlets for non-respirable worksite air or other gas systems. No asphyxiating substance will be introduced into breathing air lines

8.6. REPAIRS

Hausmann Construction, Inc. will ensure that respirators that fail an inspection or are otherwise found to be defective are immediately removed from service, and are discarded or repaired or adjusted in accordance with the following procedures:

- Repairs or adjustments to respirators are to be made only by persons appropriately trained to perform such operations and will use only the respirator manufacturer's NIOSH-approved parts designed for the respirator
- Repairs will be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed

8.7. VOLUNTARY USE

If an employee chooses to voluntarily wear a respirator when not required by this program (contaminants do not meet protection standards, odors, etc.) they will be advised of the following in their training and sign Hausmann Construction Constructions Voluntary Respiratory Filtration Usage Form.

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for employees.

However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the employee. Sometimes, employees may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, of if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You will do the following:

- Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations
- Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification will appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you
- Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke
- Keep track of your respirator so that you do not mistakenly use someone else's respirator

9.0 WORKPLACE MONITORING

A program of monitoring potential employee exposures has been implemented through the corporate health and safety department. Project personnel may also be assigned with the task of conducting air monitoring. Direct-reading instruments will also be used in the characterization of potential exposures. All the data collected is used to determine the appropriateness of the respiratory equipment.

10.0 RECORDKEEPING

Hausmann Construction, Inc. will establish and retain written information regarding medical evaluations, fit testing and the respirator program. Records of medical evaluations required by this section must be retained and made available in accordance with 29 CFR 1910.1020. Hausmann Construction, Inc. will provide the employee with an opportunity to discuss the questionnaire and examination results with the PLHCP.

Records will be treated confidentially and maintained on file in the Hausmann Construction, Inc. local office by the Hausmann Construction, Inc. human resource manager.

11.0 PROGRAM EVALUATION

Hausmann Construction, Inc. will conduct evaluations of the workplace as necessary to ensure that the provisions of the current written program are being effectively implemented and that it continues to be effective.

Hausmann Construction, Inc. will regularly consult employees required to use respirators to assess the employees' views on this program's effectiveness and to identify any problems. Any problems that are identified during this assessment will be corrected. Factors to be assessed and verified include, but are not limited to:

- Respirator fit (including the ability to use the respirator without interfering with effective workplace performance); Appropriate respirator selection for the hazards to which the employee is exposed
- Proper respirator use under the workplace conditions the employee encounters; and
- Proper respirator maintenance

12.0 TRAINING

All employees will receive respirator training during their initial health and safety training class and on an as needed basis, if required for their job classification. Training will address employee knowledge of respirators, fit, use, limitations, emergency situations, wearing, fit checks, maintenance & storage, medical signs and symptoms of effective use and general requirements of the OSHA standard. The training must be provided before requiring the employee to use the respirator.

Retraining will be administered annually, and when the following situations occur:

- Changes in the workplace or the type of respirator render previous training obsolete

- Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill; or
- Any other situation arises in which retraining appears necessary to ensure safe respirator use

Hausmann Construction, Inc. Qualitative Respiratory Fit Test Record Sheet

Note: Employee Must Have Completed Respiratory Protection Training and Passed Airway Exam before Fit Testing

Test Date: _____

Employee Name: _____ SS# _____

Test Agent: Irritant Smoke (Stannic Chloride)

Respirator Identification

Model: _____ Size (circle one): Small Medium Large
Manufacturer: _____ Approval No: _____
Added Information: Respirator must be equipped with North HEPA filters

Fit Test Protocol (Test Subject Initials show steps were performed)

___ TOLD TO KEEP EYES CLOSED DURING SMOKE EXPOSURE

___ Test subject smelled irritant smoke before fit test ___ Wore respirator 5 minutes before fit test
___ Protocol reviewed before fit test ___ Test subject did not have hair in fitting area
___ Shown how to wear respirator ___ Performed positive pressure and negative fit
___ Mirror available for use by subject check successfully after seating respirator
___ Must wear PPE (hard hat, etc.) if needed

Fit Test Steps (1 minute each except Grimace = 15 seconds)

___ Breath normally ___ Breathe deeply ___ Turned head side to side
___ Nod up and down ___ Talking (Read Rainbow Passage) ___ Grimace
___ Jog in place ___ Breath normally

Have Subject Read the Rainbow Passage While Wearing the Respirator

"When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond his reach, his friends say he is looking for the pot of gold at the end of the rainbow".

Fit Test Results: _____ Pass _____ Fail

Test Subject Signature: _____ Date: _____

Examiner's Name: _____ Examiner's Signature: _____ Date: _____

Distribution: Employee Local File – Hausmann Construction, Inc. Safety Department

HAUSMANN CONSTRUCTION, INC. Voluntary Respiratory Filtration Usage Form

At this time, no areas have been identified where Respiratory protection is required during the performance of employees' duties. However, some employees have requested that they be permitted to wear some sort of filtering device due to occasional nuisance dust in the work areas.

Products being requested by employees have classifications by the manufacturers as comfort masks (filters) or particulate respirators. Since no specific hazards have been identified at this time, products being purchased are not considered for any specific use, just general filtration.

Though the employees are using these items for nuisance dust situations, it is important that they read and understand the information provided by the product manufacturer. The following appendix to the OSHA Standard 1910.134, reiterates the employee's responsibility to understand the purpose and limitations of the product they are using for filtration:

Appendix D to Sec. 1910.134 (Mandatory) Information for Employees Using Respirators When Not Required Under the Standard

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations.

2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.

3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.

4. Keep track of your respirator so that you do not mistakenly use someone else's respirator. At the end of your shift / work assignment, break or cut the straps of the filter masks (so no one else uses it by mistake) and dispose of in the trash.

It is important that employees opting to wear these respiratory filtration devices understand that the items being provided are for general nuisance dust situations, not for any specific hazard material. If you have concern regarding any hazard associated with the material causing the nuisance, you need to check the MSDS for that material. You may also contact the Health, Safety & Environmental Program Leader with additional concerns.

Hausmann Construction, Inc. has informed me of this Standard, and provided me with a copy.

_____ _____

(Please print name) Date

_____

Signature

23.00 SCAFFOLDING SAFETY

1.0 OBJECTIVE

Any scaffolding used by Hausmann Construction, Inc. personnel and subcontractors will meet the applicable requirements of the Occupational Safety and Health Administration (OSHA) and the standards of the American National Standards Institute (ANSI).

2.0 PURPOSE

This procedure establishes guidelines for the procurement, care, and use of scaffolding used on project sites. It is an overview of 29 CFR 1926.451, Subpart L "Scaffolding."

3.0 ERECTION AND DISMANTLING

3.1 Scaffolds over 25' will be designed by a qualified person and will be constructed and loaded in accordance with that design.

3.2 Scaffolds will be erected, moved, dismantled, or altered only under the supervision and direction of a competent person qualified in scaffold erection, moving, dismantling, and alteration. Such activities will be will be performed only by experienced and trained workers.

3.2.1 Scaffolding over 6 feet high will have diagonal bracing, guardrail system, and proper means of access.

3.2.2 A licensed professional engineer competent in scaffolding will be engaged to design tube and coupler scaffolding that exceeds 125 feet in height.

3.3 Scaffolds will be erected on a firm foundation. The footing or anchorage will be sound, rigid, and capable of carrying the maximum intended load without settling or displacement. Unstable objects, such as loose bricks or concrete block, will not be used to support scaffolds.

3.3.1 Scaffold poles, legs, post frames, and uprights will bear on base plates, mudsills, or other adequate firm foundations.

3.3.2 On surfaces where there is a possibility of settling, additional support must be used under the baseplates. The minimum support must be 12" x 12" x 3/4". On uneven surfaces, screw jacks must be used to level the scaffold. Jacks are not to exceed 12 inches when extended.

3.4 Scaffolds with a ratio of height to base width (including outrigger supports) of more than four to one (4:1) will be restrained from tipping by guying, tying, bracing, or equivalent means. Guys, ties, and braces will be installed according

to the scaffold manufacturer's recommendations. Alternatively, the first guy, tie, or brace will be installed at the horizontal member closest to the 4:1 ratio, with additional guys, ties, and braces installed on horizontal members at intervals of 20 feet or less for scaffolds 3 feet or less in width, and at intervals of 26 feet or less for scaffolds wider than 3 feet.

3.5 Scaffold components made by different manufacturers will not be intermixed. Scaffold components will not be modified to make them fit.

3.6 Scaffold components made of dissimilar metals will not be used together.

3.7 Supported scaffold poles, leg posts, frames, and uprights will be plumb and braced to prevent swaying and displacement.

3.7.1 Brace scaffolding with cross-bracing or diagonal bracing, or both, for securing vertical members together laterally. The cross-braces will be of such length so as to automatically square and align vertical members so that the erected scaffold is always plumb, square, and rigid. Any bracing connections will be made secure.

3.7.2 Frames will be placed on top of one another with couplings or stacking pins to provide proper vertical alignments.

3.8 The scaffold will be secured during dismantling. Ties will be removed only as the work progresses downward. When the scaffold is being dismantled, structural members will not be removed below the level being dismantled.

4.0 PLATFORMS

4.1 Each platform on all working levels of scaffolds will be fully planked or decked between uprights and the guardrail. The scaffolding platform and walkway will be at least 18 inches wide. Working platforms will be capable of sustaining a minimum working load of 75 pound per square foot and have a safety factor of 4 to 1.

4.2 The platform will be installed so that the space between the platform and the uprights is no more than 1 inch wide except where it can be shown that a wider space is necessary (i.e., to fit around uprights when side brackets are used to extend the width of the platform). The platform will be planked or decked as fully as possible and the remaining open space between the platform and the uprights must not exceed 9.5 inches.

4.3 On platforms and walkways less than 18 inches wide, workers will be protected from fall hazards by a guardrail system or a personal fall arrest system.

4.4 Each end of a platform 10 feet or less in length will not extend over its support more than 12 inches, and each end of a platform greater than 10 feet in length will not extend over its support more than 18 inches, unless the platform is designed and installed so that the cantilevered portion of the platform is able to

support workers and materials without tipping. When the platform extends beyond the applicable limit and is not designed for the cantilevered end to support workers or materials, a guardrail system will be installed to prevent access by workers to the cantilevered end.

4.5 On scaffolds where scaffold planks are abutted to create a long platform, each abutted end will rest on a separate support surface.

4.6 When platforms are overlapped to create a long platform, the overlap will occur over the supports. The overlap will not be less than 12 inches unless the platforms are nailed together or otherwise restrained to prevent movement.

4.7 At all points of a scaffold where the platform changes direction (e.g., at a corner), any platform that rests on a bearer at an angle other than a right angle will be laid first. Other platforms that do rest at right angles over the same bearer as the platform without right angles will be laid second, on top of that platform.

4.8 Wood platforms will not be covered with opaque finishes except that platform edges may be covered or marked for identification. Wooden platforms may be coated with wood preservative and nonslip resistant finishes. However, the coating must not obscure the top or bottom wood surfaces.

4.9 Front-end loaders and similar pieces of equipment will not be used to support scaffold platforms unless the manufacturer has specifically designed them for such use.

5.0 GENERAL SAFETY MEASURES FOR SCAFFOLDING

5.1 Scaffolding and scaffold components will not be loaded in excess of their maximum intended loads or rated capacities, whichever is less.

5.2 The use of a shore or lean-to scaffold is prohibited. No barrels, boxes, loose bricks, or blocks will be used in place of scaffold.

5.3 The competent person will inspect scaffolds and scaffolding components for visible defects before each work shift and after any occurrence that could affect a scaffold's structural integrity. Inspection will require the competent person to sign and date the tag verifying it was inspected.

5.3.1 Any part of a scaffold damaged or weakened such as its strength is less than that required for the section will be immediately removed from service until repaired, and the damaged scaffold will be repaired, replaced, or braced as soon as possible.

5.3.2 A tag indicating that scaffold is unsafe will be place at all points of access, and employees will be prohibited from using the scaffold. The following tagging system will be used:

- Green – tags will be hung on scaffolds that have been inspected and

are safe for use. A green "Safe For Use" tag(s) will be attached to the scaffold at each access point after the initial inspection is complete.

- Yellow – "Caution" tags will replace all green "Safe For Use" tags whenever the scaffold has been modified to meet work requirements, and as a result could present a hazard to the user. Tag will indicate precautions for safe use (i.e. fall protection required).
- Red – "Danger – Unsafe For Use" tags will be used during erection or dismantling. Red tags will replace green (Safe For Use) and/or yellow (Caution) tags when scaffolding has been deemed unfit for use.

5.4 A scaffold will not be moved horizontally while workers are on it unless the scaffold was specifically designed for such movement.

5.5 A scaffold will not be erected, used, dismantled, altered, or moved in such a way that the scaffold or conductive material on the scaffold, including workers, could come close to exposed and energized power lines.

5.5.1 The minimum safe approach distance between scaffolding and energized power lines is 10 feet. Refer to the electrical policy for distances as determined by voltage.

5.5.2 Scaffolds and materials may be closer than 10 feet to a power line only after the utility company or owner has been notified of the need to work closer, and the utility company or owner has de-energized the line, relocated the line, or installed protective coverings to prevent accidental contact with the power line.

5.6 Workers are prohibited from working on scaffolds covered with snow, ice, or other slippery material except as necessary for removal of such material.

5.7 Work on or from scaffolding is prohibited during storms or high winds unless the competent person has determined that it is safe for workers to be on the scaffold.

5.8 Windscreens/Winter Protection (Poly Sheeting) will not be used unless the scaffold has been engineered for wind force that is anticipated to be imposed by a professional registered engineer. When they are used, windscreens will be secured to prevent them from becoming a hazard to workers and the public.

5.9 Debris will not be allowed to accumulate on platforms.

5.10 Makeshift devices, including but not limited to boxes, pails, and barrels, will not be used on top of scaffold platforms to increase the workers' working level height.

5.11 Ladders will not be used on scaffolds to increase the workers' working level height, except on large are scaffolds where the following conditions are satisfied:

- The area of scaffolding is large enough to set up a ladder at the proper angle (1 foot out for every 4 feet of working length)
- The ladder is placed against a structure that is not part of the scaffold
- The scaffold is secured against the sideways thrust exerted by the ladder
- The platform is secured and can support the weight of the ladder when the ladder is loaded
- Ladder legs are balanced and secured to prevent them from slipping or being pushed off the platform
- The ladder is tied off to a structure other than the scaffold

5.12 Scaffolding will be protected from vehicle traffic and moving equipment with barricades other suitable means.

6.0 ACCESS

6.1 When scaffold platforms are more than 2 feet above or below a point of access, portable ladders, hook-on ladders, attachable ladders, ramps, stair towers, or similar will be used to access the scaffold platform.

6.1.1 Hook-on and attachable ladders will be specifically designed for use with the type of scaffold on which they will be placed.

6.1.2 Portable, hook-on, and attachable ladders will be positioned so as not to tip the scaffold.

6.2 Cross-braces will not be used as a means of access or egress.

6.3 Landing platforms must be provided at intervals not exceeding 35 feet.

6.4 Stairway ladders will be provided with rest platforms at 12-foot intervals and will have slip-resistant treads on steps and landings. The stairway will be equipped with handrails and top rails that provide an adequate handhold for workers grasping them to avoid falling. The handrail system will have a smooth surface to prevent injury to workers from punctures or lacerations and to prevent snagging of clothing. The ends of the handrail system will be constructed so that they do not cause a projection hazard.

7.0 FALL PROTECTION

Workers on a scaffold more than 6 feet above a lower level will be protected from falling to that lower level by a guardrail system or a personal fall arrest system. When the leading end of the scaffold platform exceeds 3 inches from face of work. Personal fall protection will be used. If it is proved infeasible the distance of 3 inches from the face doesn't provide enough space to perform work (overhand brick laying/plaster and lath) the distance may be increased with the approval of Hausmann Construction, Inc. management and they meet set under Subpart L-Scaffold OSHA 1926.450 and Subpart M- Fall Protection OHSA 1926.500.

7.1 Guardrail systems will be installed along open sides and ends of platforms. The guardrail system must be in installed before the scaffold is released for use by workers other than the erection or dismantling crew.

7.1.1 The height of the top edge of the top rail will be between 39 inches and 45 inches. When conditions warrant, the height of the top edge may exceed 45 inches. The top rail will be capable of withstanding without failure at least a 200-pound force applied in any downward or horizontal direction at any point along its top edge.

7.1.2 When intermediate rails or equivalent structural members are used, they will be installed at a height approximately midway between the top rail and the platform surface. When screens, mesh, or solid panels are used, they will extend from the top rail to the scaffold platform, and along the entire opening between the supports. Intermediate rails and equivalent structural members will be capable of withstanding without failure at least a 150-pound force applied in any downward or horizontal direction at any point along the rail. Similarly, screens, mesh, and solid panels will be capable of withstanding without failure at least a 150-pound force applied in any direction at any point.

7.1.3 Toe boards will be a minimum of 3 1/2 inches in height from its top edge to the surface of the platform. The toeboard will be securely fastened in place and will not have more than 1/4-inch clearance above the platform. A toeboard may be made of any material that does not have any openings more than 1 inch in greatest dimension; preferably, the toeboard will be made of solid material. The toeboard will be capable of withstanding without failure at least a 50-pound force applied in any downward or horizontal direction at any point along it length.

7.2 When scaffold is used for overhand bricklaying, the side of the scaffold next to the wall being laid is exempt from the guardrail requirement. Any other open sides of the scaffold will be protected by a guardrail system.

7.3 Guardrails will have a smooth surface to prevent injury to workers from punctures or lacerations and to prevent snagging of clothing.

7.4 The ends of the guardrail system will not overhang the terminal posts except when such an overhang does not constitute a projection hazard to workers.

7.5 Steel or plastic banding will not be used as a top rail or intermediate rail.

7.6 A personal fall arrest system is required for any workers erecting and dismantling supported scaffolds when the installation and use of such protection is likely and does not create a greater hazard. Scaffold structural members will not be used as an anchorage point unless they are designed for that purpose.

8.0 FALLING OBJECT PROTECTION

In addition to wearing hardhats, personnel working on or near scaffolding will be protected from falling objects through the use of toe boards, screens, and guardrail systems or through the erection of debris nets, catch platforms, or a canopy structure that will contain or deflect falling objects.

8.1 The area below the scaffold where objects can fall will be barricaded, and workers will not be permitted to enter the hazard area unless the scaffold is equipped with a toeboard and guardrail system.

8.1.1 The guardrail system will be installed so that any openings are small enough to prevent the passage of falling material.

8.1.2 Tools, material, and equipment will not be stacked higher than the height of the guardrail system, except where the material is located a sufficient distance from the guardrail system as not to pose a falling object hazard.

8.2 Canopy structures, debris nets, and catch platforms must be strong enough to withstand the impact force of the potential falling object. They will be installed between the falling object and the workers below.

9.0 MANUALLY PROPELLED MOBILE SCAFFOLDS

9.1 Manually propelled mobile scaffolds will have diagonal braces, handrails, midrails, toe boards, and proper access.

9.2 Employees will not be permitted to ride on manually propelled mobile scaffolds.

9.3 When freestanding mobile scaffold towers are used, the height will not exceed four times the minimum base.

9.4 Casters will be properly designed to support four times the maximum expected load. Casters will be equipped with positive locking devices and will be locked in place any time that personnel are on scaffolds.

9.5 Scaffolds will be moved only on level floors that are free of obstructions and openings and only when no materials, tools, or personnel are on the platform.

9.6 Diagonal bars will be installed to stablize.

10.0 TUBULAR WELDED-FRAME SCAFFOLDS

10.1 Tubular welded-frame scaffolds will have diagonal braces, handrails, midrails, toe boards, and proper access.

10.2 Scaffold legs will be set on adjustable bases or plain bases placed on mud sills or other foundations satisfactory to support the maximum rated load.

10.3 Frames will be placed one on top of one another with coupling or stacking pins to provide proper vertical alignment of the legs.

10.4 Casters may only be used when the scaffold is no higher than two full sections and the rolling surface is smooth and free of obstacles.

11.0 TRAINING

Training will be provided to each worker who performs work on a scaffold. The trainer will be a person qualified in the subject matter and recognizing the hazards associated with the scaffold being used and able to teach the procedures to control or lessen those hazards.

11.1 Initial training will consist of the following areas as applicable:

- The maximum intended load and the load carrying capacities of the scaffold used
- The nature of electrical hazards and the correct procedures for dealing with electrical hazards
- Fall hazards and the type fall protective system that will be used
- Hazards posed by falling objects and the falling-object protection system to be used

11.2 Workers who are involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold will be trained by the person competent to give instruction in the work in question. The training will include the following topics, as applicable:

- The nature of scaffold hazards
- The correct procedures for erecting, disassembling, moving, operating, repairing, maintaining, and inspecting the type of scaffold in question
- The design criteria, maximum intended load, and the applicable sections of 29 CFR 1926.451, Subpart L

11.3 A written record of an employee's certification will be kept to verify compliance with training requirements. The certification record will be maintained on the jobsite. At a minimum, the written certification will include the worker's name, the date of training, and the signature of the trainer.

11.4 Retraining will be conducted when supervisory personnel have reason to believe that workers who have already been trained do not understand or demonstrate the skill required. Workers will be retrained when changes in the workplace render previous training obsolete and when changes in the scaffolds, fall protection, falling-object protection, or other equipment present a hazard about which a worker has not been previously trained.

24.00 STRUCTURAL STEEL SAFETY

1.0 OBJECTIVE

Any steel erection activity performed by Hausmann Construction, Inc. personnel and subcontractors will meet the applicable requirements of the Occupational Safety and Health Administration (OSHA).

2.0 PURPOSE

This procedure establishes guidelines for the use of steel erection used on project sites. It is an overview of 29 CFR 1926.750, Subpart R "Steel Erection."

3.0 INSPECTION AND PLANNING REQUIREMENTS

3.1 All structural steel operations will require periodic inspection to ensure the program is being implemented and adhered to. The general superintendent or designee will be responsible for all inspections.

3.2 Each operation regardless of duration will require an operational work plan and hazard analysis. This plan will be updated and maintained as the operation progresses and deficiencies or better practices are implemented. Each employee must sign the hazard analysis and be aware of the hazards associated with the work to be performed.

3.3 Before any steel erection will begin, a detailed site-specific erection plan will be developed, which will include an operational work plan and hazard analysis; including a staging plan, lift plan, and rescue plan.

3.4 The work plan and hazard analysis will include items such as rigging, body harness and lanyard inspection, avoidance of overhead power lines, critical lift criteria, multiple crane picks, and power tool use.

4.0 POLICY

4.1 FALL PROTECTION

Where possible, all erection and bolt up will take place from aerial lifts. If erection is over 6-0' above the ground and is in an area where use of a lift is not feasible; then the fall protection policy will be followed and 100% tie off is required for all personnel.

4.2 MULTIPLE LIFT RIGGING (CHRISTMAS TREEING)

4.2.1 A multi lift rigging assembly must be used specifically designed for use in a multiple lift configuration:

- Approval from the Project Superintendent or Designee
- Five member maximum pick
- Similar members lifted together
- All employees have been trained in the proper procedures for this type of operation, and the hazards associated with multiple lift (Subpart R Competent Person Course)
- The crane is designed and capable of performing a multiple lift

4.2.2 Multiple lift rigging assembly will be rigged with members:

- Attached to the center of gravity (CG)
- Rigged from the top down
- Rigged at least seven feet apart
- Set/connected from the bottom up

4.2.3 If a crane is used to unload the truck, shake out hooks are allowed only to pick loads off the truck and place on the ground. They are not to be used to set steel in any other situation.

4.3 MULTI-STORY APPLICATIONS

4.3.1 The permanent floors will be installed as the erection of structural members progresses, and there will be not more than eight stories between the erection floor and the uppermost permanent floor, except where the structural integrity is maintained as a result of the design.

4.3.2 At no time will there be more than 4 floors or 48’ whichever is less, of unfinished bolting or welding above the foundation or uppermost permanently secured floor, except where the structural integrity is maintained as a result of the design.

4.3.3 A fully planked or decked floor or nets will be maintained within 2 stories or 30’ whichever is less, directly under any erection work being performed overhead.

4.3.4 Centers or balance points will be accurately marked on beams for rigging placement when hoisting steel. Off center loads can creating dangerous situations. Tag lines will be used for all loads. Areas under steel erection will be barricaded off to prevent workers below not directly involved in the operation form being exposed to falling loads or materials. This applies to all steel hoisting, not just in multi-story applications.

4.4 WALKING AND WORKING SURFACES

4.4.1 Tripping hazards: Shear connectors (such as headed steel studs, steel bars or steel lugs), reinforcing bars, deformed anchors or threaded studs will not be attached to the top flanges of beams, joists or bean attachments so that they project vertically from or horizontally across the top flange of the member until after the metal decking, or other walking working surface has been installed or designated.

4.4.2 When shear connectors are used in construction of composite floors, roofs and bridge decks, employees will lay out and install the shear connectors after the metal decking has been installed, using the metal decking as a working platform.

4.4.3 Workers will not be permitted to walk the top surface of any structural steel member installed after July 18, 2006 that has been coated with paint or similar materials unless documentation or certification that the coating has achieved a minimum average slip resistance of .50 when measured with an English XL tribometer or equivalent tester on a wetted surface at a testing laboratory is provided. Such documentation or certification will be based on the appropriate ASTM standard test method conducted by a laboratory capable of performing the test. The results will be available at the site and to the steel erector.

4.5 PLUMBING UP

4.5.1 When deemed necessary by a competent person, plumbing-up equipment will be installed in conjunction with the steel erection process to ensure the stability of the structure.

4.5.2 When used, plumbing-up equipment will be in place and properly installed before the structure is loaded with construction material such as loads of joists, bundles of decking or bundles of bridging.

4.5.3 Plumbing-up equipment will be removed only with approval of a competent person.

4.6 COLUMN ANCHORAGE

4.6.1 General requirements for erection stability:

- Each column must be anchored by a minimum of four anchor bolts
- Each column anchor rod (anchor bolt) assembly, including the column-to-base plate weld and the column foundation, must be designed to resist a minimum eccentric gravity load of 300 lbs. (136.2 kg) located 18” (.46 m) from the extreme outer face of the column in each direction at the top of the column shaft

- Columns must be set on level finished floors, pre-grouted leveling plates, leveling nuts, or shim packs which are adequate to transfer the construction loads
- All columns must be evaluated by a competent person to determine whether guying or bracing is needed; if guying or bracing is needed, it must be installed

4.6.2 Repair, replacement, or field modification of anchor rod bolts:

- Anchor bolts must not be repaired, replaced or field-modified without the approval of the project structural engineer of record
- Prior to the erection of a column, the controlling contractor must provide written notification to the steel erector if there has been any repair, replacement or modification of the anchor bolts for that column.

4.7 LANDING AND PLACING LOADS

4.7.1 A minimum of 2 bolts is required for initial bolt up at every connection prior to the crane releasing the load. All connections will be complete before leaving for the day. All bolts will be in place prior to loading the structure.

4.7.2 During the construction period, the employer placing a load on steel joists must ensure that the load is distributed so as not to exceed the carrying capacity of any steel joist.

4.7.3 No construction loads are allowed on the steel joists until all bridging is installed and anchored and all joist-bearing ends are attached. Exception: At least 1 row of bridging is installed and anchored.

4.7.4 The weight of a bundle of joist bridging must not exceed a total of 1,000 lbs. (454 kg). A bundle of joist bridging must be placed on a minimum of 3 steel joists that are secured at one end. The edge of the bridging bundle must be positioned within 1’ (.30 m) of the secured end.

4.7.5 No bundle of decking may be placed on steel joists until all bridging has been installed and anchored and all joist bearing ends attached, unless all of the following conditions are met:

- The employer has first determined from a qualified person and documented in a site-specific erection plan that the structure or portion of the structure is capable of supporting the load
- The bundle of decking is placed on a minimum of 3 steel joists
- The joists supporting the bundle of decking are attached at both ends

- At least 1 row of bridging is installed and anchored
- The total weight of the bundle of decking does not exceed 4,000 lbs. (1816 kg)
- Placement of the bundle of decking must be in accordance with (e) of this subsection

4.7.6 The edge of the construction load must be placed within 1' (.30 m) of the bearing surface of the joist end.

4.8 METAL DECKING

4.8.1 Bundle packaging and strapping will not be used for hoisting unless specifically designed for that purpose.

4.8.2 If loose items such as dunnage, flashing or other materials are placed on the top of metal decking bundles to be hoisted, such items will be secured to the bundles.

4.8.3 Metal decking bundles will be landed on framing members so that enough support is provided to allow the bundles to be un-banded without dislodging the bundles form the supports.

4.8.4 At the end of the shift or when environmental or job site conditions require, metal decking will be secured.

4.8.5 Framed metal deck opening will have structural members turned down to allow continuous deck installation except where not allowed by structural design constraints or constructability.

4.8.6 Roof and floor holes and openings will be decked over. Where large size configuration or other structural design does not allow openings to be decked over (such as elevator shafts, stair wells, etc.) employees will be protected with fall protection following the company fall protection plan. All covered holes or openings will be marked with high visibility paint reading HOLE or COVER.

4.8.7 Metal decking holes and openings will not be cut until just prior to being permanently filled with the equipment or structure needed or intended.

4.9 ROOF AND FLOOR OPENINGS

4.9.1 Covers for roof and floor opening will be capable of supporting, 2 times the weight of the employees equipment and materials that may be imposed on the cover at any one time.

4.9.2 All covers will be secured with installed to prevent accidental

displacement.

4.9.3 All covers will be painted with high-visibility paint or will be marked with the word HOLE or COVER to provide warning of the hazard.

4.9.4 Smoke dome or skylight fixtures that have been installed are not considered covers for the support for the purpose of this section unless they meet the strength requirements.

4.9.5 Decking gaps around columns, wire mesh, exterior plywood, or equivalent, will be installed around columns where planks or metal decking do not fit tightly. The materials used must be of sufficient strength to provide fall protection for personnel and prevent objects from falling though.

4.8.6 Metal decking will be laid tightly and immediately secured upon placement to prevent accidental movement of displacement.

4.8.7 During initial placement, metal decking panels will be placed to ensure full support by structural members.

5.0 TRAINING REQUIREMENTS

5.1 Training personnel. A qualified person(s) must provide training required by this section.

5.2 Fall hazard training. The employer must provide a training program for all employees exposed to fall hazards as required by the fall protection section of this policy.

5.3 Special training programs. In addition to the training required in subsection (2) of this section, the employer must provide special training to employees engaged in the following activities.

5.3.1 Multiple lift rigging procedure. The employer must ensure that each employee who performs multiple lift rigging has been provided training in the following areas:

- The nature of the hazards associated with multiple lifts; and
- The proper procedures and equipment to perform multiple lifts

5.3.2 Connector procedures. The employer must ensure that each connector has been provided training in the following areas:

- The nature of the hazards associated with connecting
- The establishment, access, proper connecting techniques, double connections, and work practices

6.0 PROGRAM EVALUATION

6.1 This program is intended to cover most situations that we come in contact with during an operation involving structural steel. Each operation will be under the direct supervision of a project superintendent and will be monitored to ensure the structural steel policy is implemented and followed.

25.00 THERMAL STRESS

1.0 OBJECTIVE

The objective of this Hausmann Construction, Inc. procedure is to provide guidelines to employees for preventing thermal injury or illness from exposure to heat and cold.

2.0 PURPOSE

The purpose of this Hausmann Construction, Inc. program is to prevent injury or illness due to thermal stress (heat and cold) that may result from working in hot or cold environments.

3.0 TRAINING REQUIREMENTS

3.1 Supervisors and workers will be trained to recognize the signs and symptoms of thermal stresses in themselves and others in addition to prevention and control methods or techniques. Additionally, supervisors are to receive advanced training in the prevention of heat related illnesses and control methods (Administrative, Engineering and Personal Protective Equipement) before supervising employees working in thermally stressed environments.

3.2 Training will consist of:

- The various types of thermal illnesses
- Supervisor specific training (signs and symptoms, mitigation methods and controls, PPE selection, application and use)
- Factors contributing to their occurrences
- Safe work practices
- Signs and symptoms
- First Aid measures
- Importance of reporting signs and symptoms and excessive exposure to hot or cold environments
- Working durations.

4.0 ADMINISTRATIVE CONTROLS

4.1 Work performed in a hot or cold environment will be scheduled when the temperatures are less severe (e.g., morning or early evening for hot and mid-day for cold).

4.2 The number of workers in extreme temperature environments will be limited to the minimum necessary to complete the work. A work/rest schedule will be implemented, and if necessary, a rotation with two or more crews will be established.

4.3 Most outside work (with the exception of emergencies and infrastructure maintenance) will be terminated when the wind chill drops below -25° F. However, work will continue in some work locations where specialized equipment, procedures, personal protective equipment and personnel training has been developed and provided to mitigate and control the exposure to personnel and equipment.

4.4 Work will not be permitted during a heat emergency (i.e., heat waves) unless a work-rest schedule is established and enforced.

4.5 Employees will not be reprimanded for bringing the need to self-limit active work due to thermal stressors to the attention of site supervision.

4.6 When chemical resistant clothing (i.e., Tyvek® coveralls) is worn, workers in hot environments will be under constant protective observation (buddy system or supervision) and a work-rest cycle will be established.

4.7 Supervisory personnel will monitor workers to determine if they are dressed appropriately for climatic conditions and jobsite hazards.

4.8 Supervisory personnel will ensure personal factors which could contribute to a heat related illness have been taken into consideration before assigning a task where there is the possibility of a heat-related illness occurring. The most common personal factors which can contribute to a heat related illness are age, weight/fitness, drug/alcohol use and prior heat-related illnesses.

5.0 ENGINEERING CONTROLS

5.1 If feasible and practical, heavy equipment used in hot environments will be equipped with air conditioning, and in cold environments, a heater in the cab.

5.2 Shaded break area (s) will be established if feasible to enable workers to get out of the sun. If practical, a cooling fan(s) or air conditioner(s) will be placed in this break area. The break area will be designed where feasible to give workers an opportunity to change into dry clothing, or for the safe removal of articles of clothing. The area will also be equipped with drinking water.

5.3 Heated shelter(s) where feasiblewill be provided in cold environments. The shelter will be constructed to block the wind. The area will be equipped with drinking water.

6.0 PERSONAL PROTECTIVE EQUIPMENT

6.1 In hot environments, cooling garments will be used to supplement engineering and administrative controls.

6.2 Cooling bandanas maybe provided to workers for comfort.

6.3 Workers exposed to the sun will be encouraged to wear loose fitting, light colored clothing with long sleeve shirts and wear sunscreen with a sun protective factor (SPF) of at least 35 .

6.4 As necessary, hard hat accessories such as terry cloth sweatbands, winter liners, sunshields, and nap cloths will be offered to workers for their comfort.

6.6 Employees working outdoors will be offered safety glasses with UV and sun protection.

6.7 Foul weather gear, such as rain suits, mud boots and insulated clothing will be made available to workers assigned to work in inclement weather conditions.

6.8 When working in cold environments it is best to avoid the use of cotton clothing. Cotton holds moisture and can contribute to cold stress. Synthetic materials such as polypropylene, Gore-Tex®, and natural wool are better at removing moisture and trapping warmth. Layering is also highly recommended to form air pockets in clothing to serve as added insulation. If the wearer starts to sweat, a layer will be removed. Continue to change layers based on activity and temperature to achieve maximum comfort and protection.

7.0 DRINKING WATER

7.1 In hot and cold environments drinking water will be available to workers in general areas. Subcontractors will be responsible to supply water jugs, ice and water for their immediate work areas for the employees.

7.2 Portable drinking water containers will be the insulated type with a closed top and will be labeled “Drinking Water”.

7.3 Water will be changed on a daily basis and the container must be cleaned inside and outside daily. A person will be assigned the duty of maintaining water containers.

7.4 Cups for water will be of the disposable type and will be kept clean and sanitary.

7.5 Where individual water bottles are used, they will be labeled with owner’s name. Sharing of cups or water bottles is prohibited. Bottles will be capped when not in use.

7.6 Where sports drinks are available to workers, the containers will be labeled as to their contents. Workers will also be provided with drinking water.

8.0 AMBIENT TEMPERATURE MEASUREMENTS

As necessary, the workplace will be monitored to determine the employee exposure to extreme hot and cold temperatures. This determination will be specified in a site-specific health and safety plan or by consultation with the Project Superintendent or Designee

8.1 HEAT STRESS

8.2.1 With the nature of construction working in hot climates always needs to be consideration when planning our operations. Hausmann Construction recognizes this has impalmented the the following procedures protect it employees. As necessary, the Hausmann Construction, Inc. site supervisor(s) will develop a break schedule for employee as temperatures increase. This schedule is a guideline and will be adjusted as needed for that day's forecasted temperatures by Hausmann Construction, Inc. site supervisor(s). Subcontractors are responsible to develope a break schedule and procedures for their employee(s) to prevent heat stress related injuries and illnesss.

8.2 COLD STRESS

8.3.1 Monitoring for cold stress is limited to documenting air temperature and wind speed, and implementing a work/warm-up schedule. This schedule is a guideline and will be adjusted as needed for that day's forecasted temperatures by Hausmann Construction, Inc. site supervisor(s). Subcontractors are responsible to develope a break schedule and procedures for their employee(s) to prevent heat stress related injuries and illnesss.

8.3.2 Where the air temperature falls below 30.2°F and/or the wind speed exceeds 5 mph, both the temperature and wind speed will be measured. A conventional thermometer and pocket wind meter can be used to determine the air temperature and wind speed.

Equivalent Temperature/Wind Chill Chart

Actual Temperature Reading (°F)												
Wind Speed	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
(mph)	Equivalent Chill Temperature (°F)											
Calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-46	-58	-70	**-83**	**-95**
15	36	22	9	-5	-18	-32	-45	-58	-72	**-85**	**-99**	**-112**
20	32	18	4	-10	-25	-39	-53	-67	**-82**	**-96**	**-110**	**-121**
25	30	16	0	-15	-29	-44	-59	**-74**	**-88**	**-104**	**-118**	**-133**
30	28	13	-2	-18	-33	-48	-63	**-79**	**-94**	**-109**	**-125**	**-140**
35	27	11	-4	-20	-35	-51	-67	**-82**	**-98**	**-113**	**-129**	**-145**
40	26	10	-6	-21	-35	-53	-69	**-85**	**-100**	**-116**	**-132**	**-148**
	Little Danger			Increasing Danger Flesh may freeze within 60 seconds				Great Danger Flesh may freeze within 30 seconds				

8.3.3 When the air temperature is -15°F or lower, a work/warm-up schedule will be implemented (see below chart).

Work/Warm-up Schedule for Four-Hour Shift

Air Temperature (Sunny Sky)	No. noticeable Wind		5 mph Wind		10 mph Wind		15 mph Wind		20 mph Wind	
°F	Max Work Period	No of Breaks	Max Work Period	No of Breaks	Max Work Period	No of Breaks	Max Work Period	No of Breaks	Max Work Period	No of Breaks
-15 to –19°	Normal	1	Normal	1	75 min	2	55 min	3	40 min	4
-20 to –24°	Normal	1	75 min	2	55 min	3	40 min	4	30 min	5
-25 to –29°	75 min	2	55 min	3	40 min	4	30 min	5		
-30 to –34°	55 min	3	40 min	4	30 min	5				
-35 to –39°	40 min	4	30 min	4						
-40 to –44°	30 min	4	Non- Emergency Work Will Cease							
-45° & below										

26.00 TRAFFIC CONTROL SAFETY

1.0 OBJECTIVE

The objective of this procedure is to prevent motor vehicle incidents involving vehicles driven by the general public as well as to protect Hausmann Construction, Inc. and subcontractor personnel from motor vehicle related incidents.

2.0 PURPOSE

This program will be followed as a supplement to local and state traffic control plans and policies. This plan will apply to every Hausmann Construction, Inc. project or location where a traffic control plan is required.

3.0 INTRODUCTION

3.1 A Traffic Management Plan (TMP) will be implemented to mitigate construction related impacts to traffic. A TMP measures and responds to impacts on traffic, topography, demography, and "politics" of a roadway caused by the construction. It means coordinating new, temporary traffic patterns with surrounding cities and counties and developing a working relationship with local agencies and authorities (i.e. DOT, Highway Patrol, Police, Fire, etc.)

- Proper traffic control techniques effectively reduce confusion to motorists
- Expedite traffic flow
- Reduce accidents
- Eliminate exposure of hazards to workers and the public
- Prevent damage to private and public property, including damage to the construction project and equipment
- Protect the company from the possibility of claims and litigation arising from construction zone accidents and incidents
- Improve public relations
- Fulfill contract requirement

3.2 Understanding traffic devices in work areas requires standardizing the type and placement of signs, barricades and delineators. No work may be performed in any public right-of-way without permission from the authorizing agency. The traffic control will be in accordance with the provisions of the agency's permit for the work.

4.0 INSPECTION AND PLANNING

4.1 It is important to inspect the traffic control periodically throughout the operation or closure. Using the inspection log at the end of this section identify deficiencies and correct them immediately. Photos will be taken of any traffic control in the morning before each shift and after each shift at a minimum. The person in charge of traffic control will be in charge of the log and in charge of the photos that back up or identify deficiencies in our traffic control.

4.2 All work will be planned well in advance to minimize traffic obstructions, public inconvenience and interruption of work. The responsible person will visit the jobsite before starting the work to identify:

- Traffic conditions (i.e., volume, speed, etc.)
- Existing traffic control
- Traffic lane requirements
- Physical features
- Visibility restrictions
- Problems of access
- Type, number and location of signs, barricades, lights and other traffic devices required for the work
- Pedestrian traffic, including means of mitigating any adverse effect upon physically disabled person

5.0 POLICY

5.1 DOCUMENTATION

5.1.1 One person will be responsible for documenting traffic control. One log will be maintained for Class A signing and for actual closure activity. Routine inspections of the traffic control installation will be carried out by the same individual

5.1.2 Further documentation will include photos for recording any accidents or incidents, and recording the control daily. These pictures will be taken in a successive series from advance warning, all the way up to and including termination of the traffic pattern:

5.1.3 Documentation records will include

- Beginning and ending shift times
- Location of work
- Changes in temporary or permanent regulatory devices

- Installation, change and removal of traffic control devices

5.1.4 When an inspection requires correction to include maintenance, the documentation will include:

- Description of the corrections needed, when it was noted and by whom
- Corrections made or deferred and why
- Replacements made or deferred and why
- Any other needed actions

5.1.5 Good documentation begins with an inventory of traffic control devices located in both the shop and the field. Major projects will require more detailed documentation since they involve more equipment, personnel and longer distances and times of physical exposure with increased danger to employees and public.

5.1.6 All traffic control will be performed in accordance with the owner's specifications and the approved permit or submittal.

5.2 CONTROL AND GUIDANCE DEVICES

5.2.1 Effective warning and guidance devices are planned out in advance, and will be uniformly placed and maintained. There are six categories of devices: signs, barricades, delineators, high level warning devices, warning lights/illumination, and flashing arrow/message boards

5.2.3 Traffic signs warn, guide and regulate traffic flow and are classified into four functional groups: Construction, warning, guidance and regulatory:

- Construction signs are used only for construction or maintenance work on or adjacent to the roadway
- Warning signs generally apply to permanent situation, but have some applications on temporary construction sites
- Guidance signs are similar to warning signs
- Regulatory signs are used for posting speed limits, are enforced by local law enforcement agencies and are maintained by the contractor when placed within or adjacent to the work area

5.2.4 Sign location depends on alignment, grade, location of street intersections and posted speed limits. They must face and be visible to oncoming traffic and be mounted to resist displacement.

5.2.5 Advance warning signs are located on the right-hand side of traffic lanes. On divided highways, supplemental advance warning signs will be placed on the divider.

5.2.6 Messages conveyed during hours of darkness must be on reflectorized or illuminated signs.

5.2.7 Signs must be installed before work begins and will be removed or covered immediately after work has been completed. If at any time a sign is not required, it will remain covered or be removed.

5.2.8 Barricades are used to mark or block off a specific hazard or to channel traffic. They may not be placed in a moving lane of traffic without advance warning, such as high level warning devices (i.e., flashing arrow signs, etc.) and appropriate delineators.

5.2.9 When closing off a street, barricades will be placed to prevent vehicles from passing through, except where access is necessary for local traffic or emergency vehicles.

5.2.10 Marking barricade rails is done by alternating orange and white stripes on a downward slant at 45 degrees. The entire area of white and orange must be reflectorized for nighttime use. The width of stripes depends on the size of the rails. Rails less than three feet require four-inch wide stripes; all other rails require six-inch stripes. Barricades will have a minimum of 270 square inches of retro reflective area facing traffic when used on freeways, expressways, and other high-speed highways. Barricades with stripes that begin in the upper right side and slope downwardly to the lower left are designated right barricades. Barricades with stripes that begin in the upper left side and slope downwardly to the lower right are designated left barricades. Barricades will slope or face the on-coming traffic.

5.2.11 On high speed highways or in situations where barricades are susceptible to overturning in the wind, sandbags will provide ballasting. Sandbags may be placed on lower parts of the frame or stays to provide the required ballast but will not be placed on top of any striped rail.

5.2.12 Delineators are markers, which help a driver determine the location and alignment of the traffic lane. During daylight, delineator effectiveness is determined by position, spacing, form, texture, size and color. During nighttime, effectiveness is determined by position and visibility. All delineators used at night must have adequate reflective material.

5.2.13 Delineators are used for the following instances:

- To channel and divert traffic in advance of work zones

- To define traffic lanes through work zones
- To define a change in the position of the existing lane around work zones
- To define curves and edges of the roadway on detours

5.2.14 Delineators will be constructed to withstand impact without appreciable damage to the device, the striking vehicle or passing traffic, including damage from knockdown by wind or turbulence from passing vehicles.

Minimum Recommended Delineator and Sign Placement				
Traffic Speed	**Taper Length**	**Delineator**	**Spacing**	**Sign spacing**
	(Each Lane)	**(Taper)**	**(Tangent)**	**(Advance of Taper & Between Signs)**
25 MPH 30 MPH 35 MPH 40 MPH 45 MPH 50 MPH 55+ MPH	150 Feet 200 Feet 250 Feet 350 Feet 550 Feet 600 Feet 1000 Feet	25 Feet 30 Feet 35 Feet 40 Feet 45 Feet 50 Feet 50 Feet	50 Feet 60 Feet 70 Feet 80 Feet 90 Feet 100 Feet 100 Feet	150 Feet 200 Feet 250 Feet 350 Feet 550 Feet 600 Feet 1000 Feet

5.2.15 Flashing Arrow / Message Signs are panels with a matrix of electric lights, capable of sequential arrow displays or messages. They are intended to supplement, not replace, other work area traffic control devices by providing additional, high level, advance warning of lane closures. They are effective for all lane closures and will be considered for all high speed situations.

5.2.16 Flashing Arrow / Message Signs will be repaired immediately or taken out of service if:

- Any of the lamps are out

- The panel is not dimming properly
- Lamps are out of alignment

5.3 FLAGGER CONTROL

5.3.1 Flaggers are required:

- When workers or equipment intermittently block a traffic lane
- When plans call for one lane to be used for two directions of traffic with a flagger at each end
- When safety determines there is a need
- When required by the contract

5.3.2 Flaggers will be alert, intelligent, neat in appearance, have good hearing and eyesight, and trained in the techniques of flagging traffic before placement in this position. They must be far enough away from the work to slow or stop traffic before it enters the work zone.

5.3.3 All flaggers must wear a protective clothing to include a reflective high visibility vest; hard hats; safety glasses; sign paddles; and when necessary, carry two-way radios. From sunset to sunrise, flagger stations must be illuminated so the flagger is clearly visible to approaching traffic. Also, flaggers need to be monitored to receive breaks, water and have access to restrooms.

5.3.4 When communicating through radios, a spare battery pack will be readily available. If, for some reason, communication breaks down between the flaggers, the operation is to be shut down immediately until the situation is remedied.

5.4 NIGHT CLOSURES

5.4.1 Although most accidents actually occur during the daylight hours, the majority of fatalities occur at night. We cannot eliminate the possibility of an accident, however, with the proper equipment, training, planning, personnel and warning devices we can greatly reduce exposure.

5.4.2 During night operations, a “back-up”, “shadow”, or “protection” vehicle may be used and will be positioned 100 feet or more behind the “cone” truck as the first signs are placed. This process is to be followed for set-up and tear-down.

5.4.3 All crews working in or around the closure need to be outfitted with personal protective equipment, including bright clothes with a minimum of DOT Type 2 classification, hard-hats, safety glasses and

reflective high visibility vests. A white jumpsuit with reflective material is also acceptable. All workers will be visible at a distance of 1,000 feet and, if working together, will all be wearing the same clothing to prevent confusing approaching motorists.

5.4.4 Other applicable accessories include:

- Retro reflective striping on hard-hats
- Eight (8) hour snap light, or light sticks pinned to clothing
- Hard-hat with mini-light attachments

5.4.5 Before making nighttime closures, all materials and equipment must be inspected and in good working order. All message boards and flashing arrow signs will be tested to ensure all lights and switches are functioning properly and that the equipment is fueled and fully charged. All inspections and maintenance procedures will be documented daily. All Company equipment policies must be followed.

5.4.6 Devices maintained in project inventory must be kept clean, stored properly to avoid marring and organized to verify that all items are in stock and readily retrievable.

5.4.7 Devices will be inspected when they are returned to inventory. Any devices that are non-standard or in poor condition will be removed from service, and repaired. Equipment on work sites must be in good operating condition to avoid breakdowns and delays.

5.5 DAY CLOSURES

5.5.1 The largest number of vehicle accidents, involved on construction sites, occur during daylight hours. It is vital that all closures begin well in advance of the area where work is conducted to provide a strong cushion of worker safety.

5.5.2 Devices will be installed in the direction of traffic in the following order:

- First Advance Warning Sign
- Advance Warning Zone
- Transition Zone
- Buffer Zone
- Work Zone

- Termination Zone

5.5.3 When signs and channeling devices are installed and removed several times during an operation, a spot will be painted or marked where each sign or device is located to minimize time required to reset the signs or devices. Drivers do NOT expect to see workers in the roadway setting up a traffic control zone. Since the goal is to make the entire operation safe, flashing vehicle lights will be used to warn the drivers of the presence of workers.

5.5.4 All aspects of the closure will provide clear, concise direction to all drivers. Be sure of positioning and visibility of all signs, flashing arrow/message signs, barricades and delineators. Any part of the pattern that has been disturbed will be reset as soon and as quickly as possible.

5.6 SPECIALIZED VEHICLES

5.6.1 Projects that require extensive traffic control may set up specific traffic control vehicles with flashing / rotating lights or beacons, sign racks, cone racks, worker platforms, protective railing and impact absorption capabilities.

5.6.2 The cone truck will be a 1-ton flatbed outfitted with two warning beacons visible from all directions and a Type II flashing arrow sign controlled from within the cab.

5.6.3 There will be two platforms on the truck for workers to stand while setting out the cone pattern, one on each side built into the bed and frame. These must be a stand-in type cage so that the worker can stand upright while placing or removing the cones. This design will help to ensure the safety of the worker while reducing the possibility of an injury due to excessive bending.

5.6.4 The crash truck will be a 5-ton flat bed, outfitted with the same warning devices as the cone truck (check with local authorities for your area as some require Type I arrow signs on crash trucks). There will be an approved Truck-Mounted Crash Cushion (TMCC) attached to the rear of the truck for added protection against vehicle impacts. Crash cushions offer some protection to errant vehicles by slowing the vehicle to a stop when hit head-on or by altering their direction away from the work zone.

5.6.5 If used, the crash truck must always be the last vehicle in the traffic control procession. There will be two-way communication between all vehicles and the superintendent in charge of traffic control. Communication is the key to running a safe, smooth, well directed closure.

5.6.6 Placement of the crash truck between workers and oncoming traffic can be determined by the following table.

5.6.7 Roll-ahead stopping distances are for worst case scenarios, where all braking is done by the shadow vehicle under ideal conditions (dry pavement, good tire tread, good brakes, brakes fully engaged, etc.). Listed distances traveled by the impacted vehicle are not changed or altered by a Truck-Mounted Crash Cushion (TMCC).

6.0 TRAINING

Each person directing traffic or setting up traffic control must have a current traffic control card with proper certification for each type of traffic control being performed.

HAUSMANN construction

Traffic Control Inspection Log

Project: _____ TCP Inspection

Inspector: _____ Date: _____

Direction: _____ Time: _____

I. Signs: _____

- ❒ All Correct
- ❒ # Missing _____
- ❒ # Incorrect/Improper____

Location of Missing Signs (Milepost #'s): _____

Location of Improper Signs (Milepost #'s): _____

II. Lights:

- ❒ All Correct
- ❒ # Missing _____
- ❒ # Incorrect/Improper____

Location of Missing Lights (Milepost #'s): _____

Location of Improper Lights (Milepost #'s): _____

III. Markings: _____

- ❒ All Correct
- ❒ # Missing _____
- ❒ # Incorrect/Improper____

Location of Missing Markings (Milepost #'s): _____

Location of Improper Markings (Milepost #'s): _____

Resulting Action: _____

_____

Time and Date that action was taken: _____

Name and Title: _____

27.00 WELDING & CUTTING

1.0 OBJECTIVE

The objective of this procedure is to prevent incidents related to welding and cutting as performed on Hausmann Construction, Inc. project sites.

2.0 PURPOSE

The purpose of this procedure is to provide guidance for the safe use and operation of welding and cutting equipment, and to protect employees and property from harm when these operations are conducted.

3.0 GENERAL SAFETY GUIDELINE

3.1 The welder or torch cutter will utilize a hot work checklist to survey the work areas for combustibles, flammable materials and chemicals and remove or control these hazards before welding or torch cutting activities are conducted.

3.2 Employee(s) will inspect area of work and coordinate welding and torch activities with owners or operators of facilities where Hausmann Construction performs work, before work is conducted. Must verify precautions of hot work checklist have been taken on hot work log prior to start of hot work.

3.3 Welding on structural or critical items, such as scaffolding, shoring, forms, ladders, and pilings will be performed by a certified welder using qualified welding procedures. Additional safe work procedures and OSHA requirements may apply when welding from these types of equipment. Refer to the specific equipment section of this manual and contact the safety department for any additional governmental regulation that may apply.

3.4 Engine driven equipment will have enclosures and guards in place and be turned off before refueling, servicing, or replacing mechanical parts.

3.5 Welding and torch cutting apparatus and equipment will be inspected daily prior to use. Defective apparatus and equipment will be removed from service, replace, or repaired and re-inspected before being used again.

3.6 Persons engaged in welding or torch cutting operations (including helpers) will wear the necessary protective equipment to prevent exposure to UV rays, flashes, sparks, and molten metals.

3.7 Where it is necessary to protect nearby workers and other from the UV rays, flashes, sparks and molten metals, nonflammable protective screens or curtains will be erected.

3.8 Ample first aid supplies and treatment personnel will be made available while performing the welding, cutting or steel fabrication tasks. Only personnel with

current First Aid/CPR/AED certification are allowed to perform First Aid/CPR/AED responder tasks.

4.0 FIRE PREVENTION

4.1 PREVENTION TECHNIQUES

4.1.1 Welding, cutting or burning will, whenever possible, be confined to area free of combustible and flammable materials. When this is not possible, combustible and flammable material will be removed or protect from fire, spark, and slag.

4.1.2 No welding, cutting, or burning will be done in areas containing flammable and/or combustibles, vapors, or dust, until the atmosphere has been tested and found safe.

4.1.3 Where welding, cutting, or burning is performed outside of the shop area, supervisory personnel verify that the area is free of combustible and/or flammable liquids, vapors or dusts and that atmospheric tests has been carried out.

4.1.4 Noncombustible barriers will be installed below welding or burning operations in or over a shift or raise.

4.1.5 Where combustible materials such as paper clippings, wood shavings, or dust are on the floor, the floor will be swept clean for a radius of 35 feet around the cutting or welding operation. Combustible floors will be kept wet, covered with damp sand, or protected by fire-resistant shields. Floor openings or cracks will be closed or sealed with a fire-resistant shield or covering.

4.1.6 Before welding, cutting, or heating any material covered by a preservative coating whose flammability is unknown, a test will be made to determine its flammability. As necessary the surface will be stripped for a distance of at least 4 inches from the area of the heat application.

4.1.7 Fire extinguishers rated 2-A: 40-B: C units or larger will be immediately available whenever welding or cutting is being carried out.

4.1.8 Reverse flow check valves will be installed between the hose and torch inlet. Flashback arresters will be installed in front of gas regulators.

4.1.9 Cylinders will be shut off and regulator screws backed out. Wrenches and keys will be left with fuel gas cylinders. Oxy-fuel gas cylinders will be transported with the regulators removed and the cylinder caps replaced. Empty cylinders will be marked empty.

4.1.10 Oxygen will not be used to blow clothing off, workbenches or for purging vessels. Oxygen will not be connected to compressed air tools.

WARNING: Pure oxygen under pressure can cause spontaneous combustion in contact with grease and oil. Never bring these substances together.

5.1 HOT WORK REQUIREMENTS

5.1.1 A Hot Work Log must be filled out for all operations that generate sparks and/or flames.

5.1.2 Supervisory personnel will verify that the conditions of the hot work checklist (Check list items listed below in this section) are implemented and verified on the Hot Work Log.

Hot Work Checklist

- Sprinklers and fire hoses streams in service/operable
- Hot work equipment in good condition (power source, welding leads, torches, etc.)
- Multi-purpose fire extinguishers and/or water pump can

Requirements within 35 feet of work

- Dust, lint, debris, flammable liquids and oily deposits removed
- Explosive atmosphere in area eliminated
- Combustible floors (wood, tile, and carpeting) wet down, covered with damp sand or fire blankets
- Flammable and combustible materials, removed where possible. Otherwise protected with fire blankets, guards, or metal guards
- All wall and floor openings covered.
- Walkways protected beneath hot work

Work on Walls and Ceilings

- Combustibles moved away from other side of wall

Work in Confined Spaces

- Confined space cleaned of all combustibles (grease, oil, flammable vapors)
- Containers purged of flammable liquids/vapors
- Company confined space guidelines followed

Fire Watch/Hot Work Area Monitoring

- Fire watch will be provided during and for 30 minutes after work, including any breaks during the shift.
- Fire watch is supplied with an extinguisher, and/or water can, also making use of other extinguishers located throughout work area
- Fire watch is trained in use of this equipment and familiar with location of sounding alarm.
- Fire watch is required for opposite side of walls, above, and below floors and ceilings

5.1.3 A fire watch will be required whenever welding or cutting is performed in locations where combustible materials are closer than 35 feet away from the point of operations, or where significant amounts of combustibles are more than 35 feet away but are easily ignited by sparks.

5.1.4 A 30 minute fire watch will be required when combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by conduction or radiation. The fire watch will be maintained for at least a half hour after completion of welding or cutting operations, so that possible smoldering fires will be detected and extinguished. The firewatcher will be equipped with a fire extinguisher, trained in the use of fire extinguishing equipment, and a means for sounding the fire alarm.

6.0 ARC WELDING

6.1 WELDING MACHINE

6.1.1 The welding machine will conform to the requirements of the National Electrical Manufactures' Association or listed by Underwriters' Laboratories.

6.1.2 The welding machine will be installed, inspected, and maintained in accordance with the manufactures written instructions.

6.1.3 When welding machines are used outside, they will be protected from rain and snow in such a way that ventilation is not impaired.

6.1.4 Welding machines will be stored in a clean, dry area.

6.1.5 Frames or cases of welding machines (except engine driven) operated from power circuits will be grounded.

6.1.6 Before working on the welding machine it will be disconnect from the power supply.

6.2 WELDING CABLES

6.2.1 Cables will be inspected before use for wear and damage. Those with damaged insulation, conductors, or connection must be repaired or replaced.

6.2.2 Cables will be properly and completely insulated, flexible, and capable of handling the maximum current requirements of the work and properly connected.

6.2.3 Damaged insulation will be removed from service, replaced or repaired, and re-inspected before it is placed back into service.

6.2.4 Cables will be kept dry and free of oil and grease.

6.2.5 Cables will be neatly uncoiled before using to prevent damage to the insulation. The welder cables will be positioned so that sparks and molten metal will not fall on them. Cables will be laid out to prevent entanglement or tripping. Cables will not lay in roadways, water, oil, ditches, and bottom of tanks, stairways, or ladders.

6.2.6 When work is at a distance from the welding machine, cables will be supported overhead. When this is impractical, they will be laid on the ground and protected from damage.

6.2.7 Cable leads shall not be damaged within 10’ of the stinger or point of employee operation.

6.3 GROUND RETURNS

6.3.1 Ground connections will be inspected to ensure that they are mechanically strong and electrically adequate for the required current

6.3.2 Welding current will be returned to the welding machine by a single work lead from the weldment to the appropriate connector on the welding machine.

6.3.3 Where it is necessary to pass the return current through a conductor or structure on which the weldment rests or to which the weldment is connected, it will be determined that the required electrical contact exists at any joints. The generation of an arc, spark, or heat at any point will cause rejection of that conductor as a return ground.

6.3.4 Pipelines containing flammable gases or liquids, electrical conduit, chains, wire rope, crane hoist or similar devices will not be used for a ground. Where a chain or hoist supports the weldment, an insulating link will be installed on the master link.

6.4 GENERAL ARC WELDING PRECAUTIONS

6.4.1 When electrode holders are to be left unattended, the electrodes will be removed and the holders will be so placed or protected that they cannot make electrical contact with employees or conducting objects. Electrodes or welding leads must never be draped over wire rope guardrails, utilities, or allow other conductors to come into contact with them.

6.4.2 When the welder has occasion to leave his or her work or stop work for any appreciable length of time, or when the arc-welding machine is to be moved, the machine will be turned off.

6.4.3 Protect yourself from electric shock by insulating yourself from work and ground. Use nonflammable, dry insulating material if possible, or use dry rubber mats, dry wood or plywood, or other dry insulating material big enough to cover your full area of contact with the work or ground, and watch for fire.

6.4.4 Electrode holders will never be dipped in water for cooling purposes.

6.4.5 Welding will never be done directly on a concrete floor. Heat from the arc can cause steam to build-up in the floor, which could cause the concrete to explode.

6.4.6 Workers will not place their body between the two cables, coil the electrode lead around their body, or work directly next to the welding power source. Do not lean against the work piece or weld if clothing is wet.

6.4.7 If using auxiliary power, GFCI protection is required on electric power cords unless double insulated tools are used.

6.4.8 Plastic disposable cigarette lighters are very dangerous around heat and flame. It is very important that they not be carried in the pockets while welding.

6.4.9 Where compressed gas cylinders are used they will be placed where they cannot become part of an electrical circuit. Electrodes will not be struck against a cylinder to strike an arc.

7.0 GAS CUTTING or WELDING

7.1 REGULATOR

7.1.1 Regulators will be inspected at the beginning of each work shift and will be in proper working order while in use. Defective regulators will be removed from service. A factory-trained technician will make repair to regulators.

7.1.2 Only pressure regulators that are approved by either Factory Mutual or Underwriters Laboratories will be used.

7.1.3 Pressure regulators will be used on both oxygen and fuel gas cylinders to maintain a uniform gas supply to the torches at the correct pressure.

7.1.4 A one-way check valve will be installed at the outlet of the oxygen and fuel gas regulators, unless it has been confirmed that the check valve is built into the regulator

7.1.5 Before a regulator is connected to a cylinder valve, the valve will be opened slightly and closed immediately. (This action is generally termed "cracking" and is intended to clear the valve of dust or dirt that might

enter the regulator.) The person cracking the valve will stand to one side of the outlet, not in front of it. The valve of a fuel gas cylinder will not be cracked where the gas would reach welding work, sparks, flame, or other possible sources of ignition.

7.1.6 Regulators and gauges. Oxygen and fuel gas pressure regulators, including their related gauges, will be in proper working order while in use.

7.2 CYLINDERS

7.2.1 Oxygen and fuel gas will not be used from cylinders through torches or other devices that are equipped with shutoff valves without lessening the pressure through a suitable regulator attached to the cylinder valve.

7.2.2 Tilting and rolling them on their bottom edges will move cylinders. They will not be intentionally dropped, struck, or permitted to strike each other violently.

7.2.3 When cylinders are hoisted, they will be secured on a cradle, sling board, or pallet. They will not be hoisted or transported by means of magnets or choker sling.

7.2.4 When cylinders are transported by powered vehicles, they will be secured in a vertical position.

7.2.5 Valve protection caps will not be used for lifting cylinders from one vertical position to another. Bars will not be used under valves or valve protection caps to pry cylinders loose when frozen. Warm, not boiling, water will be used to thaw cylinders loose.

7.2.6 Unless cylinders are firmly secured on a special carrier intended for this purpose, regulators will be removed and valve protection caps put in place before cylinders are moved.

7.2.7 A suitable cylinder truck, chain, or other steadying device will be used to keep cylinders from being knocked over while in use.

7.2.8 When work is finished, when cylinders are empty, or when cylinders are moved at any time, the cylinder valve will be closed.

7.2.9 Compressed gas cylinders will be secured in an upright position at all times except, if necessary, for short periods of time while cylinders are actually being hoisted or carried.

7.2.10 Oxygen cylinders in storage will be separated from fuel-gas cylinders or combustible materials (especially oil or grease), a minimum distance of 20 feet (6.1 m) or by a noncombustible barrier at least 5 feet (1.5 m) high having a fire-resistance rating of at least one-half hour.

7.2.11 Inside of buildings, cylinders will be stored in a well-protected, well-ventilated, dry location, at least 20 feet (6.1 m) from highly combustible materials such as oil or excelsior. Cylinders will be stored in definitely assigned places away from elevators, stairs, exists, or gangways. Assigned storage places will be located where cylinders will not be knocked over or damaged by passing or falling objects, or subject to tampering by unauthorized persons. Cylinders will not be kept in unventilated enclosures such as lockers and cupboards.

7.2.12 Cylinders will be kept far enough away from the actual welding or cutting operation so that sparks, hot slag, or flame will not reach them. When this is impractical, fire resistant shields will be provided.

7.2.13 Cylinders will be placed where they cannot become part of an electrical circuit. Electrodes will not be struck against a cylinder to strike an arc.

7.2.14 Fuel gas cylinders will be placed with valve end up whenever they are in use. They will not be placed in a location where they would be subject to open flame, hot metal, or other sources of artificial heat.

7.2.15 Cylinders containing oxygen or acetylene or other fuel gas will not be taken into confined spaces.

7.2.16 No damaged or defective cylinder will be used.

7.2.17 Valve protection caps will be in place and secured to any cylinders not in use.

7.2.18 Employees will not attempt to refill any compress gas cylinder.

7.3 CONNECTING CYLINDER TO REGULATOR

7.3.1 Before a regulator to a cylinder valve is connected, the valve will be opened slightly and closed immediately. (This action is generally termed "cracking" and is intended to clear the valve of dust or dirt that might enter the regulator.) The person cracking the valve will stand to one side of the outlet, not in front of it. The valve of a fuel gas cylinder will not be cracked where the gas would reach welding work, sparks, flame, or other possible sources of ignition.

7.3.2 The cylinder valve will always be opened slowly to prevent damage to the regulator. For quick closing, valves on fuel gas cylinders will not be opened more than 1 1/2 turns. When a special wrench is required, it will be left in position on the stem of the valve while the cylinder is in use so that the fuel gas flow can be shut off quickly in case of an emergency. In the case of manifolded or coupled cylinders, at least one such wrench will always be available for immediate use. Nothing will be placed on

top of a fuel gas cylinder, when in use, which may damage the safety device or interfere with the quick closing of the valve.

7.3.3 Attach the regulator with a wrench and do not over tighten. Always use proper fitting wrenches when making connections. Do not use vise grips or pipe wrenches. Oxygen cylinders have a right-hand thread (clockwise). Fuel gas cylinders have a left-hand thread (counterclockwise). Avoid cross-threading or damaging brass parts.

CAUTION: Some propane regulators are interchangeable with acetylene regulators. Propane regulators are usually set for 50 p.s.i. while acetylene regulators operate at 5 p.s.i. using a propane regulator on an acetylene cylinder without adjusting the operating pressure can cause serious flashback. Check the setting on the dial before using.

7.3.4 Before a regulator is removed from a cylinder valve, the cylinder valve will always be closed and the gas released from the regulator.

7.3.5 If, when the valve on a fuel gas cylinder is opened, there is found to be a leak around the valve stem, the valve will be closed and the gland nut tightened. If this action does not stop the leak, the use of the cylinder will be discontinued, and it will be properly tagged and removed from the work area. In the event that fuel gas will leak from the cylinder valve, rather than from the valve stem and the gas cannot be shut off, the cylinder will be properly tagged and removed from the work area. If a regulator attached to a cylinder valve will effectively stop a leak through the valve seat, the cylinder need not be removed from the work area.

7.3.6 Oil and grease hazards. Oxygen cylinders and fittings will be kept away from oil or grease. Cylinders, cylinder caps and valves, couplings, regulators, hose, and apparatus will be kept free from oil or greasy substances and will not be handled with oily hands or gloves. Oxygen will not be directed at oily surfaces, greasy clothes, or within a fuel oil or other storage tank or vessel.

7.4 HOSES

7.4.1 Any hose carrying oxygen, fuel gas, or any gas or substance which may ignite or enter into combustion, or is in any way harmful to employees, will be inspected at the beginning of each working shift. Defective hose will be removed from service.

7.4.2 Fuel gas hose and oxygen hose will be easily distinguishable from each other. The contrast may be made by different colors or by surface characteristics readily distinguishable by the sense of touch. Oxygen and fuel gas hoses will not be interchangeable. A single hose having more than one gas passage will not be used.

7.4.3 When parallel sections of oxygen and fuel gas hose are taped together, not more than 4 inches out of 12 inches will be covered by tape.

7.4.4 Hose which has been subject to flashback, or which shows evidence of severe wear or damage, will be tested to twice the normal pressure to which it is subject, but in no case less than 300 p.s.i. Defective hose, or hose in doubtful condition, will not be used.

7.4.5 Hose couplings will be of the type that cannot be unlocked or disconnected by means of a straight pull without rotary motion.

7.4.6 Boxes used for the storage of gas hose will be ventilated.

7.4.7 Hoses, cables, and other equipment will be kept clear of passageways, ladders and stairs.

7.4.8 Fuel and gas hoses and equipment will not be interchanged to trade functions (i.e., oxygen hose used as a gas hose). Right and left threads will not be altered to allow interchanging of hoses and connections.

7.4.9 Hoses brought into confined spaces will be immediately rolled back after use.

7.5 TORCHES

7.5.1 Torches in use will be inspected at the beginning of each working shift for leaking shutoff valves, hose couplings, and tip connections. Defective torches will not be used.

7.5.2 Clogged torch tip openings will be cleaned with suitable cleaning wires, drills, or other devices designed for such purpose.

7.5.3 Torches will be lit by friction lighters or other approved devices, and not by lighter, matches or from hot work.

7.6 PREPARING THE TORCH

7.6.1 Turn the adjusting handle on the regulator counterclockwise to release pressure on the diaphragm spring.

7.6.2 Attach a welding or cutting tip as required.

7.6.3 Open the oxygen valve all the way. CAUTION: Always stand to the side of the regulator and slowly open the cylinder valve. Regulators have been known to explode, causing serious injury.

- Open acetylene valve no more than ¾ of a turn
- Open fuel gas valves slow to prevent freezing

7.6.4 Adjust the regulator screws to show slight pressure. After purging the system, shut off the torch valves.

7.6.5 Check the manufacture's chart for proper regulator setting suited to the tip size and job application. Adjust the regulator screw to the required pressures.

7.6.6 Test the regulators, hoses, and connections for leaks and fix if necessary.

7.6.7 Open the oxygen valve on the torch handle. Adjust oxygen to the desired flow range. Then close the torch handle valve. Open the fuel valve on torch handle. Adjust fuel to the desired flow range.

7.6.8 Reopen the torch valves and light torch according to equipment manufactures procedures.

7.7 USING THE TORCH

7.7.1 Wear proper PPE to guard against the hazards that are present

7.7.2 Never burn directly on a concrete floor. The heat from the torch can cause the concrete to expand and shatter with great force. Put a piece of plate between the work and the floor, or work on a welding bench.

7.7.3 The torch must point away from the user's body and co-workers at all times.

7.7.4 If you experience a backfire or flashback (a shrill hissing sound when the flame is burning inside the welding nozzle), immediately turn off the oxygen valve. Then, turn of the fuel valve. Allow the torch and nozzle to cool before trying to reuse. If backfire and flashback reoccurs, to don't use the apparatus until repaired by a qualified repair technician.

7.7.5 WHEN SHUTTING OFF A TORCH, ALWAYS CLOSE THE OXYGEN VALVE FIRST AND the fuel valve last

7.8 CARE OF EQUIPMENT

7.8.1 If cutting operations will discontinue for long periods (such as during lunch), compressed gas cylinders will be closed, torch valves and regulator pressure adjusting screws will be opened to relieve pressure. For longer periods (overnight) cylinder valves will be closed, gas gauges removed, and protective screw caps will be replaced.

7.8.2 When using flame-cutting equipment, the following procedures will apply:

- Coil and hang up loose gas hoses when not in use to keep them clean and free from contamination and the risk of puncture
- Repair gas hoses with a proper coupler only

- If possible, run gas hoses through a piece of pipe or between planks to protect them from traffic
- Do not tape or cover up more than 4 inches of every 12 inches of gas hose with tape or other materials
- Never drag a torch by the hose
- Keep torch tips and threaded hose and gauge connections clean of grease, oil, and slag. Clogged torch tips will be cleaned with suitable cleaning wires, drills, or other devices designed for the purpose
- Store equipment in a safe place, preferably in a box made for torch parts, hose, and regulators
- Shut off gauges and close gas cylinder valves before removing them from the cylinder
- Remove gas cylinders and replace the protective valve screw cap at the end of each shift.

8.0 VENTILATION

Ventilation is a necessary precaution for the removal of potentially harmful fumes out of the breathing zone of the welder**.** Acceptable ventilation for welding, cutting and related processes is natural and mechanical ventilation. When ventilation controls cannot be implemented workers will be protected from welding fumes by the use of respiratory protection. The criteria for respiratory protection can be found in procedure (Respiratory Protection) of the Hausmann Construction, Inc. safety procedures manual.

Certain materials sometime contained in the consumables, base metals, coatings, or atmosphere of welding or cutting have every low exposure limits or are governed by specific OSHA standard. Among these materials are:

Antimony	Chromium	Mercury	Arsenic	Cobalt
Nickel	Barium	Copper	Selenium	Beryllium
Lead	Silver	Cadmium	Manganese	Vanadium
Fluorides	Stainless steel			

Refer to the SDS to identify any materials listed above maybe contained in the consumable (rod, wire, flux) or base metals of the weldment. Consult the applicable OSHA standard for special safety precaution that needs to be taken or contact the health and safety representative.

8.1 NATURAL VENTILATION

8.1.1 Natural ventilation is acceptable to keep the welder's breathing zone away from the plume until the following conditions are met.

- Space of more than 10,000 cubic foot per welder is provided

- Ceiling height is more than 16 feet
- Welding is not done in a confined space
- Welding spaces does not contain partitions, balconies, or other structural barriers that obstruct cross-ventilation
- Materials covered above are not present as deliberate constituents

8.2 MECHANICAL VENTILATION

8.2.1 The preferred method of ventilation for welding and cutting procedures is local ventilation. As applicable local ventilation (exhaust. smoke suckers, forced air) will be used to remove fumes away from the breathing zone. Precautions will be taken to prevent contaminates are not dispersed to other work areas. The minimum velocity of 100 feet per minute will be maintained for a distances of 2 feet directly above the work area.

8.2.2 General mechanical ventilation (wall exhaust fans, roof exhaust fans and similar air movers) will be used where applicable to reduce the levels of fumes in the work area. As a rule of thumb for general ventilation will be provided at a rate of 2000 cubic feet per minute per welder.

8.3 FUME AVOIDANCE

8.3.1 To avoid breathing the welding or cutting fume plume, welding and cutting will be done by positioning the work, the head, or by ventilation that directs the plume away from the face.

9.0 CONFINED SPACE

9.1 Welding and cutting in confined spaces will be done in accordance to the procedures and criteria outlined in Hausmann Construction, Inc. safety procedure (Confined Space).

9.2 Additional precautions for welding and cutting in confined spaces maybe recommended by the health and safety representative after evaluating the confined spaces and purposed operations.

10.0 DRUMS, TANKS AND CLOSED CONTAINERS

10.1 Closed containers that have held flammable liquids or other combustibles will be thoroughly cleaned and test for hazardous atmosphere before welding or cutting.

10.2 When the container cannot be removed for standard cleaning or as an added precaution after cleaning a container to be welded or cut may be filled with either carbon dioxide or nitrogen to dilute and render nonhazardous any remaining combustible gas or vapors. The container

may also be filled with water to within an inch or two of the place where the work is to be done and the vent is left opened.

11.0 PERSONAL PROTECTIVE EQUIPMENT

11.1 Personal clothing used for welding or torch cutting will be oil and grease free and contain no rips or tears that, expose the skin. Clothing made of synthetic blend will be avoided; cotton or wool blend fabric is preferred. The use of synthetic blend insulated underwear will also be avoided. Sleeves and collars will be kept buttoned. Clothing will not have pockets or cuffs where sparks or slag could get caught.

11.2 Adherence to Hausmann Construction, Inc. safety procedure (Personal Protective Equipment) located in the Hausmann Construction, Inc. safety procedures manual.

11.3 The type of welding or cutting work and surrounding circumstances dictate to a great extent the kind of protective clothing that will be worn**.** As applicable the following protective clothing will be used by welders, cutters and helpers:

- Flame-resistant gauntlet gloves-leather or other suitable material
- Coveralls, jacket, sleeves, apron or cape made of flame-resistant material
- Safety glasses with side shields worn under welding helmets and face shield
- Face shield will be used for grinding operations
- Welding helmet or hand- shield. Helmet must be in the down position when an arc is struck. Auto darkening helmets are acceptable.(shade level 10-14)
- Goggles or face shield are required for torch cutting (shade 3.0 to 5.0)
- Conventional tinted safety glasses or eyewear will not be used for direct viewing of welding or cutting process
- Hearing protection as required for noise and to keep sparks out of the ear
- Where there is a danger of falling objects hard hats will be worn. The welding helmet or face shield will be adapted to fit the hard hat
- Respiratory protection in accordance with Hausmann Construction, Inc. safety procedure as indicated in the Hausmann Construction, Inc. safety procedures manual

11.4 Eye and face protection will conform to ANSI Z49.1 and Z87.1 standards. Table-1 and 2 of this procedure lists shade numbers that must be used for various arc welding and gas cutting processes.

11.5 Protective equipment will be inspected before use in accordance with the manufacturers requirements. Protective clothing and equipment will be maintained in accordance's with the manufactures requirements. Defective equipment shall not be used until repaired.

11.6 Protective clothing and equipment will be stored in a well ventilated place away from the immediate work are when not in use. The equipment must be dry and free of oil grease or other flammable materials.

12.0 TRAINING

12.1 Employees using welding and flame-cutting equipment will be trained on the following items specific to welding or torch use:

- Procedures listed in this document
- Employees assigned to operate or maintain equipment will be familiarized with 29 CFR 1029.254 and 29 CFR 1029.252(a)(b) and (c)
- The use, care and limitations of personal protective equipment
- The storage, handling, and use of compressed gas cylinders, welding and cutting equipment
- Fire safety and the use of fire extinguishing equipment
- Hazard involved with welding and cutting operations

12.2 Certified welders will have available their credentials for inspection and photocopying.

12.3 Employees left in charge of oxygen, acetylene or fuel-gas supply equipment must be instructed and designated as a competent person by Hausmann Construction, Inc..

12.4 Employees assigned to operate arc welding equipment must be properly trained, qualified and designated as a competent person by Hausmann Construction, Inc.

Table 1

FILTER LENSES FOR ELECTRIC ARC PROCESSES

OPERATION	Electrode Size 1/32 inch	Arc Current AMPS	Minimum [1] Protective Shade
Shield metal arc welding	Less than 3 3 to 5 5 to 8 more than 8	Less than 60 60 to 160 160 to 250 250 to 550	7 8 10 11

Gas metal arc welding and flux-cored arc welding		Less than 60 60 to 160 160 to 250 250 to 500	7 10 10 10
Gas tungsten arc welding		Less than 50 50 to 150 150 to 500	8 10 10
Air carbon	Light	Less than 500	10
Arc cutting	Heavy	555 to 1,000	11
Plasma arc welding		Less than 20 20 to 100 100 to 400 400 to 800	6 8 10 11
Plasma arc	Light [2] Medium [2] Heavy [2]	Less than 300 300 to 400 400 to 800	8 9 10
Carbon arc welding			14

1 As a rule of thumb, start with a shade that is too dark to see the welding zone. Then go to a lighter shade that gives enough view of the weld zone without going below the minimum.
2 These values apply where the actual arc is clearly seen. Experience has shown that lighter filters may be used when the arc is hidden by the work piece.

Table 2
FILTER LENSES FOR OXY FUEL-GAS PROCESSES

Operation	**Plate Thickness (inches)**	**Plate Thickness (millimeters)**	**Minimum Protective Shield**
Gas Welding Light Medium Heavy	 Under 1/8 1/8 to ½ Over ½	 Under 3.2 3.2 to 12.7 Over 12.7	 4 5 6
Oxygen Cutting Light Medium Heavy	 Under 1 1 to 6 Over 6	 Under 25 25 to 150 Over 150	 3 4 5
Torch brazing			3
Torch Soldering			2

28.00- Cranes, Signaling and Rigging

1.00 OBJECTIVES

The objective of this sections is to prevent incidents related to crane, hoist, signaling and rigging operations. This program applies to all cranes, hoisting and rigging equipment that is used or operated on our projects.

2.00 PURPOSE

This procedure sets up criteria for employees that are working with or around cranes, hoists and rigging equipment.

3.00 APPLICATION

The application is a general overview of OSHA Subpart CC covering cranes, signaling, rigging components and Hausmann Construction, Inc. policy on our projects that will be followed by all employees. This procedure does not cover OSHA 1926.1400 Subpart CC in depth. Reference OSHA 1926.1400 Subpart CC for additional detailed requirements.

4.00 PRE-CRANE SETUP

Prior to set up or use of any crane determining ground conditions, foundation/anchor requirements, underground utilities, excavations, power lines, other cranes or overhead obstructions that may hinder the safe operation of the crane(s) will be assessed and additional precautions will be taken to mitigate the hazard as required by OSHA 1926.1400 Subpart CC, manufacture, or professional register engineer.

5.00- OPERATION

Listed below are General Operating Requirements for use of crane on Hausmann Construction, Inc. projects.

5.01 Lift Planning

Crane lifts are categorized into two types, critical or general.

- Critical lifts
  - Any load that exceeds 75% of the crane/hoisting capacity at the given radius as show on the load chart.
  - Multiple crane pick where two or more cranes are required to hoist a load.
  - Lifting Personnel
  - Working within the prohibited zone of power lines
  - Any lift that will pose additional risk to the public

If lift to be performed meets any of the items listed able critical lift plan form must be filled out.

All critical lifts must be authorized by senior management

- General Lifts
  - If lift does not meet one of the items above it is considered a general lift

5.02 Basic lift Elements

No matter what category the lift fall under, all basic elements must consider for all lifts

- Weight of Load
- Radius of lift
- Cranes Capacity
- Crane Setup
- Size of load
- Center of gravity
- Rigging components needs to lift the load
- Environmental consideration (wind and weather)
- Operators skills
- Communication

6.00 WORKING AROUND POWERLINES

Cranes will be positioned such that no part of the crane is capable of coming within 20 feet of any 0-350 kilovolts power lines or with 50 feet of any 350-1000 kilovolts power lines. For lines over 1000 kilovolts the utility owner or qualified professional engineer must set the working distance. At no time will the crane be set closer than 50 feet for lines greater than 1000 kilovolts. These distances are known as the prohibited zone.

If required distance cannot be met per kilovolts of the lines within the operation area and any part of the cranes can enter the prohibited area. The follow requirements must be met

- Utility Company is to de-energize the powerlines and visually ground them. De-energization and grounding must be confirmed in writing.
- Powerlines will re-located by Utility Owner

7.00 RIGGING

Items listed below are policy for rigging the hook or a cranes and lifting devices on our projects

7.01 General Requirements

- One person with in the rigging operation must be a qualified rigger
- All manufacture, regulatory agency and policy guidelines must be followed in regards to safe rigging practices
- Qualified person shall inspect all rigging before use to ensure that the safe working load limits is valid
- Each rigging assembly or component will be in use will have the safe working

load limit clearly identified.
- Never exceed the stated manufacture safe working load limit.
- Defective rigging shall be destroyed and discarded.

7.02 Lifting Devices
- All lifting devices must comply with the ASME B.30.20 Below the hook lifting device standard.
- All lifting devices must be designed to the ASME BTH-1 Design of below the hook lifting devices by a qualified professional engineer.
- All lifting devices must be built by a qualified fabricator
- All welding must be in accordance with ANSI/AWS D14.1 and ASME BTH-1
- All lifting devices should be inspected pre ASME B30.20 Section 20-1.3
- All lifting devices must have following information clearly marked on structure or attached tag. Manufactures name and address, serial number, lifter weight, cold current amps (if applicable), Rated Voltage (if applicable), rated load, ASME BTH-1 Design Category, ASME BTH-1 Service Class.
- For existing or third party lifting devices, a copy of certified load test results and design must be on file at the job site.

8.00 SIGNALING REQUIREMENTS
- Person Signaling Crane must be qualified.
- Only one person is to signal crane operator at any time with exception of the stop signal which can be giving by anyone.
- Hand signal chart shall be posted on the side of the equipment.
- All directions given shall be from the operators prospective.
- The signal person must warn others in the area when load(s) are hoisted and keep all unauthorized personnel outside the cranes operating radius.
- The person performing the signals must position themselves as to where they can see the load and is in clear sight of the operator.
- Only signals given by the designated signaler will the operator respond. The stop signal is the exception which can be giving by anyone.
- The operator and signaler must agree upon of any non-standard signals prior to the lift
- Visual or audible by radio communication between the signaler and operator must be constant. If communication is lost, the operator is to stop movement until communication is reestablished.

9.00 Crane Inspections

9.01 Daily Inspections

Operators will conduct visual crane and hoist inspection daily. Use the manufacturer's inspection form if available, if not available, use a form similar to the manufacturers form. Inspection must be completed and present in the cab.

9.02 Monthly inspections

Competent individual shall perform inspect each crane monthly. Inspections will be recorded and housed in the crane or jobsite office and file will be maintained for each crane.

9.03 Annual Inspections

Annual inspections will be performed by qualified third party. Prior the use of any crane the annual third party inspection must be completed and present in the cab. It is the responsibility of the equipment manager to ensure all Hausmann Construction, Inc. owned cranes are inspected annually in accordance with regulatory requirements.

10.00 Crane Operator Requirements

Only NCCO Operators authorized by Hausmann Construction, Inc. or its subcontractor will be allowed to operator cranes on Hausmann Construction, Inc. projects.

10.01 General Requirements

- Be qualified to operate the equipment
- Be thoroughly familiar with controls and power system
- Have basic knowledge of the crane inspection to be aware of any problems in the crane structure, hoisting assembly or driveline
- Understand the cranes capabilities of the specific model there are operating
- Understand the cranes capacity charts
- Understand the proper programing and setup of load moment indicator (LMI) or on board computer if equipped
- Be familiar with operators and maintenance manual supplied with the crane
- Know requirements for classification of critical lifts.
- Be stable in character, physical fit and capable of reacting quickly to unforeseen potential hazards
- Pass a written and Practical Test for each crane type and manufacture
- Possess a up to date NCCO card for the type and model of crane there are operating

11.00 Rigging Personnel Requirements

Person rigging the load must be qualified in inspection requirements, application of rigging devices and knowledge of rigging triangle and authorized as a qualified rigger by Hausmann Construction, Inc. or its subcontractors. Qualified rigger card must be kept on file at jobsite office and could also be kept on person.

12.00 Signal Personnel Requirements

Person signaling cranes must meet the following requirements to be authorized as a qualified signaler.

- Know and understand the various types of signals used and permitted
- Be competent in the application of hand and verbal signals required and used
- Have knowledge and understanding of lifting equipment operations and limitations
- Know and understand the relevant regulations information for OSHA 1926.1419 through 1926.1422 and 1926.1428
- Demonstrate the meet the requirements through an administered oral and written exam and practical test.

13.00 General Requirements for Slings

- Slings that are damaged or defective will not be used.
- Slings will not be shortened with knots or bolts or other makeshift devices.
- Sling legs will not be kinked.
- Slings will not be loaded in excess of their rated capacities.
- Slings used in a basket hitch will have the loads balanced to prevent slippage.
- Slings will be securely attached to their loads.
- Slings will be padded or protected from the sharp edges of their loads.
- Suspended loads will be kept clear of all obstructions.
- All employees will be kept clear of loads about to be lifted and of suspended loads.
- Hands or fingers will not be placed between the sling and its load while the sling is being tightened around the load.
- Shock loading is prohibited.
- Before being lifted completely from its resting position, loads will be checked for proper balance.
- Unapproved makeshift slings will never be used.

14.00 General Handling Requirements for Moving Loads

- The crane may not be loaded beyond its rated load except for testing purposes.
- Ropes must be free from kinks or twists and not be wrapped around the load.
- Loads are attached to the block hook by slings or other approved devices, taking care that the slings clear all obstacles.
- Loads must be secure and balanced in the sling or lifting device before it is lifted.
- Hoist rope is not kinked.
- Multiple part lines are not to be twisted around each other.
- Hooks are brought over the load to prevent swinging.
- There is no sudden acceleration or deceleration.
- Cranes may not be used for side pulls.
- Loads may not be carried over people.
- At least two full wraps of rope must remain on the drum at all times.
- Operators must remain at the controls at all times when loads are suspended.
- A warning signal must activate when the bridge starts and when the load or hook approaches personnel.

- Upper limit switches must be no-load tested at the beginning of each operator's shift. Extreme care must be used; the block is "inched" into the limit or run in at slow speed. If the switch does not operate properly, the crane may not be used until repaired.
- The hoist limit switch, which controls the upper limit of travel of the load block, may never be used as an operating control.

15.00 Repairs/Modifications and Testing for Cranes and Hoists

- All repairs and modifications to new and existing crane and hoist systems are made by a professional engineer or the manufacturer.
- Adjustments to crane and hoist equipment may be performed by qualified personnel under the direct instruction of either a professional engineer or the manufacturer.
- Cranes must be tested upon initial installation and after alterations.

16.00 General Requirements for Cranes and Hoists

- Wind indicators (anemometer) will be in place and stationed at the boom tip. A visible or audible alarm must be provided to warn the operator of winds exceeding a set velocity. (Velocity limit warning will be set pre manufactures requirements of the crane)
- Passageways and walkways (including those used to maintain crane equipment) must be free from obstruction, and be located so they do not jeopardize the safety of any employee on the walkway.
- Parallel cranes must have adequate space between bridges so that hoisted materials and the crane equipment is not at risk.
- Controls must be visible (well lighted) and located within convenient reach of the operator when facing the load and/or direction of travel of the cab. Load hook must be in full view at all times.
- 2A rated fire extinguisher will be in place on all crane. Cab operators must be trained and familiar with their use.
- Brakes (control and holding types) must be provided that adequately slow and stop the crane, and which hold the load.
- Electrical equipment and components will comply with OSHA's Electrical Safety requirements.
- Warning devices and alarms must be installed for all cranes (except floor operated cranes) that have power traveling mechanisms.
- Ladders must be free from obstruction and other encumbrances during use. Articles that are too large for pockets or belt attachments must be lifted and lowered by a hand line.
- Cabs must be kept neat so that personal items do not interfere with the operation or access to controls. Tools, oil cans, waste, extra fuses, and other necessary articles should be stored in a tool box.
- Swing radius guards will be in place around all cranes
- All cranes must be leveled to manufactures specification prior to operation.

29.0 Crystalline Silica Exposure Program

1.0 OBJECTIVE

The Crystalline Silica Exposure Control Plan applies to Hausmann Construction, Inc. personnel who are potentially exposed to concentration levels of respirable crystalline silica (silica) that are above 50 micrograms per cubic meter of air, in a 8-hour time-weighted average (TWA). This Plan also applies to Hausmann Construction, Inc. superintendents, foremen, or safety personnel who may be responsible for overseeing a subcontractor's operations that have the potential to become exposed to concentrated levels of silica at or above regulatory permissible exposure limits.

2.0 PURPOSE

The purpose of this procedure is to provide safe guidelines for construction activities that involve any level of exposure to crystalline silica (silica), and to protect individuals that may be exposed to concentration levels of respirable crystalline silica that are above regulatory permissible exposure limits during workplace activities for the durations established by OSHA regulations.

3.0 SCOPE

This program describes the hazards associated with material and activities that could potentially create exposure to concentrated levels of silica. Protection from these hazards and materials are required throughout Hausmann Construction projects. These projects include, but are not limited to:

- **Brick:** Tasks that involve the activities including bush hammering, cutting/sawing, demolishing/disturbing, drilling/coring, grinding, jackhammering, and sweeping/housekeeping activities that may create exposure to materials containing silica.
- **Cement:** Tasks that involve construction activities that include mixing/pouring, sacking/patching, and sweeping/housekeeping activities that create exposure to materials containing silica.
- **Concrete:** Tasks that involve the activities including bush hammering, cutting/sawing, demolishing/disturbing, drilling/coring, grinding, jackhammering and sweeping/housekeeping activities that may create exposure to materials containing silica.
- **Concrete Block:** Tasks that involve construction activities such as cutting/sawing, drilling/coring, jackhammering, and sweeping/housekeeping activities that may create exposure to materials containing silica.
- **Drywall:** Tasks that involve construction activities such as cutting/sawing, drilling/coring, sacking/patching, sanding, and sweeping/housekeeping activities that may create exposure to materials containing silica.

- **Grout:** Tasks that involve construction activities such as mixing/pouring, sacking/patching, and sweeping/housekeeping activities that may create exposure to materials containing silica.
- **Mortar:** Tasks that involve construction activities such as cutting/sawing, grinding, sweeping/housekeeping activities that may create exposure to materials containing silica.
- **Rock:** Tasks that involve construction activities dealing with earthmoving activities that may create exposure to materials containing silica.
- **Sand:** Tasks that involve construction activities dealing with earthmoving activities that may create exposure to materials containing silica.
- **Stone:** Tasks that involve construction activities such as cutting/sawing, grinding, sweeping/housekeeping activities that may create exposure to materials containing silica.
- **Tile:** Tasks that involve construction activities such as cutting/sawing, drilling/coring, grinding, jackhammering, and sweeping/housekeeping activities that may create exposure to materials containing silica.

Hausmann Construction, Inc. employees or sub-contractors who work in proximity to silica-related operations must be aware of safe work practices and take all necessary precautions associated with avoiding and minimizing airborne silica exposure.

4.0 Regulatory Review

Occupational Safety and Health Administration (OSHA) 29 CFR 1926.1153: Respirable Crystalline Silica (Construction Industry) and 29 CFR 1910.1053: Respirable Crystalline Silica (General Industry), contain regulatory requirements specific to respirable crystalline silica. This Written Exposure Control Plan is developed in accordance with the requirements in 29 CFR 1926.1153(g).

5.0 Project Planning

5.1 Training Requirements

Hausmann Construction, Inc. employees who anticipate working on projects where they could be exposed to airborne silica will be provided training in silica hazards in accordance with the crystalline silica exposure program that is established to comply with the hazard communication standard (29 CFR 1910.1200). Each employee will have access to labels on containers of crystalline silica and safety data sheets, and be provided information on the health hazards of silica including cancer, lung effects, immune system effects, and kidney effects. In addition, Hausmann Construction, Inc. employees will be provided training and information regarding specific activities identified in this plan that could result in airborne silica exposure, and the specific engineering controls, work practices and respiratory protection requirements to mitigate the potential airborne silica exposures. This training will provide a discussion of silica hazards, initial exposure determination either by complying with 29 CFR 1926.1153 Table 1 requirements or air monitoring, specific engineering and work practice control measures, personal protective equipment (PPE), and medical surveillance requirements. The training will also identify the Hausmann Construction, Inc. competent person for silica exposure identification and determination of control requirements. All Hausmann Construction, Inc. employees will be provided with access to a copy of 29 CFR 1910.1153 and be trained on the contents of 29 CFR 1926.1153.

5.2 Medical Surveillance Requirements

Hausmann Construction, Inc. shall institute medical surveillance for any employees required by this Plan to where a respirator 30 or more days per year. Initial medical surveillance consists of medical and work history with emphasis on: past, present, and anticipated exposure to silica, dust and other agents affecting the respiratory system; any history of respiratory system dysfunction, including signs and symptoms of respiratory disease (e.g., shortness of breath, cough, wheezing); history of tuberculosis; and smoking status and history; a physical examination with emphasis on the respiratory system; chest X-ray (a single posterio-anterior radiographic projection or radiograph of the chest at full inspiration recorded on either film (no less than 14 x 17 inches and no more than 16 x 17 inches) or digital radiography systems), interpreted and classified according to the International Labor Office (ILO) International Classification of Radiographs of Pneumoconiosis by a NIOSH-certified B Reader; a pulmonary function test to include forced vital capacity (FVC) and forced expiratory volume in one second (FEV1) and FEV1/FVC ratio, administered by a spirometry technician with a current certificate from a NIOSH approved spirometry course; testing for latent tuberculosis infection; and any other tests deemed appropriate by the Occupational Medicine Provider. Subcontractors are responsible for implementing a medical surveillance program for their employees.

5.3 Competent Person Requirements

Hausmann Construction, Inc. shall identify a competent person to inspect and oversee all activities with potential airborne silica exposure. Subcontractors working on projects within the scope of this program shall appoint a competent person capable of executing the duties described herein. The competent person must have training in the inspection of work areas and equipment and in the determination of safe working conditions. This person shall have a working knowledge of the 1926.1153 standards, shall be capable of identifying airborne silica hazards, shall determine the need for initial and additional exposure monitoring, shall recommend and implement engineering and work practice controls, shall establish levels of PPE, and shall have the authority to take action to eliminate hazards and correct incidences of noncompliance.

5.4 Planning Activities

Projects where anticipated activities involve concrete cutting, grinding, sandblasting, drilling, coring, or other abrasive operations are treated as potential sources for airborne silica exposure. Additionally, existing structures and materials such as sheetrock, any painted surfaces with low volatile organic compounds, tile, brick, or some insulation products may contain silica. Likewise, new material installation may involve silica-containing mortar, paints, or insulation. Where process knowledge indicates the presence of silica, Hausmann Construction, Inc. will either implement all controls required by 1926.1153 Table 1- Exposure Control Methods for Selected Construction Operations or conduct an initial determination in accordance with 29 CFR 1926.1153(d)(2).

6.0 Project Execution

6.1 Safe Work Practices

The requirements of this section are to be followed by Hausmann Construction, Inc. employees, who may be exposed to airborne concentrations of silica at or above the regulatory limits.

6.1.1 Exposure Assessment

Hausmann Construction, Inc. will either comply will with and implement all controls required by 1926.1153 Table 1- Exposure Control Methods for Selected Construction Operations or conduct an initial determination in accordance with 29 CFR 1926.1153(d)(2). Hausmann Construction must detail here the specific activities that they perform with potential for airborne silica exposure and identify all requirements specified in 1926.1153 Table 1 or describe the exposure assessment they will perform to determine airborne silica exposure levels and the required interim control measures that will be used to protect employees until the exposure levels have been established and final control measures can be identified. If not following 1926.1153 Table 1 requirements or performing an activity with potential airborne silica exposure not identified in Table 1 the exposure assessment must contain elements listed below.

- An exposure assessment is required when employees may be exposed to airborne silica at or above the action level in order to determine the extent to which employees are exposed and the appropriate exposure controls required.
- An initial determination of exposure shall be made at the beginning of operations. The determination shall consist of the collection of personal air samples representative of a full shift including at least one sample for each job classification in each work area, either for each shift, or for the shift with the highest exposure level.
- During the initial determination, until such time that actual airborne concentrations are determined, personnel shall be protected by respiratory protection based on task- specific anticipated airborne concentrations of silica as illustrated in Table 2 below:
- During the initial determination, and in addition to the levels of respiratory protection required, personnel shall be provided with protective clothing and equipment, hygiene facilities, and training.
- Whenever a change in equipment, process, controls, or personnel occurs, or a new task has been initiated, an additional exposure assessment is required.
- When an assessment determines that exposure has occurred above the action level but below the PEL, additional monitoring shall be required at least every 6 months. Additional monitoring shall continue until such time that the monitoring results fall below the action level on two separate occasions at least 7 days apart.
- When monitoring yields results above the PEL, then quarterly monitoring is required. In addition, the quarterly monitoring may be suspended when additional monitoring results fall below the action level on two separate occasions at least 7 days apart.
- Where the competent person can clearly demonstrate, in the absence of air monitoring data, that a work activity will not create airborne silica concentrations in excess of the action level, then air monitoring may be unwarranted. Where a negative initial determination is reached without air monitoring, the competent person must develop a written explanation as to why exposures are not expected to exceed the action level.

6.1.2 Communication of Hazards

- Each employee shall be provided training and demonstrate knowledge and understanding of the following:
    - Health hazards associated with exposure to respirable crystalline silica
    - Specific tasks that could result in exposure to respirable crystalline silica
    - Specific measures that are required to protect employees from exposure to respirable crystalline silica, including engineering controls, work practices, and required use of respiratory protection
    - The contents of the 29 CFR 1926.1153
    - The identity of the competent person
    - Purpose and description of the medical surveillance program
- A written compliance program shall be made available to all affected employees.
- In addition, notification to owners, contractors, and other personnel working in the area shall be made.

6.1.3 Control Methods

- Engineering and work practice controls, including administrative controls, shall be implemented to reduce and maintain employee exposure to silica at or below the PEL, to the extent that such controls are feasible.
- Where all feasible engineering and work practice controls that can be instituted are not sufficient to reduce employee exposure to or below the PEL, such controls shall be used, nonetheless, to reduce employee exposure to the lowest feasible level (and in conjunction with respiratory protection).
- Respiratory protection shall be selected based on guidance in 1926.1153 Table 1 or based on a Certified Industrial Hygienist's or competent person's assessment of the potential airborne exposure that may be created by the means and methods of work (high energy operations with high airborne dust generation or low energy operations with low dust generation).
- When using mechanical ventilation to control exposure, regularly evaluate the system's ability to effectively control exposure.
- If administrative controls are used to limit exposure, establish and implement a job rotation schedule that includes employee identification as well as the duration and exposure levels at each job or work station where each affected employee is located.
- A written compliance program shall be established and implemented prior to the start of operations within the scope of this Written Compliance Plan. The written program shall outline the plans for maintaining employee exposure below the PEL.
- Maintain all surfaces as free as possible from accumulations of silica. Select methods for cleaning surfaces and floors that minimize the likelihood of silica becoming airborne (such as using a HEPA vacuum).

- If vacuuming is the method selected, specialized vacuums with HEPA filtration are required. Methods to use and empty vacuums in a manner that minimizes the reentry of silica into the workplace shall be described and used. Use of household vacuums with HEPA filters are not allowed at any time for the collection of dust or debris that contains silica.
- Never use compressed air to remove silica from any surface unless it is used in conjunction with a ventilation system designed to capture the airborne dust created while using the compressed air.
- Employees shall not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in any areas where exposure to silica is above the PEL (in other words, regulated areas).
- Do not allow employees to leave the workplace wearing any protective clothing or equipment that is required to be worn during their work shift without HEPA vacuum removal of dust.
- Where feasible, install shower facilities and require employees who work in regulated areas to shower at the end of their work shift. Also provide an adequate supply of cleaning agents and clean towels.
- Provide hand washing facilities for use by employees working in regulated areas. Furthermore, require employees to wash their hands and face at the end of the work shift and prior to eating or entering eating facilities, drinking, smoking, or applying cosmetics.
- Eating facilities or areas shall be provided for employees working in regulated areas. These facilities shall be maintained free of silica contamination and shall be readily accessible to those employees.

6.1.4 Personal Protective Equipment (PPE)

Respiratory protection must be used for the following conditions:

- During periods when employee exposure to airborne silica exceeds the PEL
- For work operations where engineering and work-practice controls are not sufficient to reduce employee exposure to or below the PEL
- During periods when an employee requests a respirator
- During periods when respirators are required to provide interim protection while conducting initial exposure assessments
- Powered air-purifying respirators (PAPR) shall be provided to employees who request such a respirator to use where it will provide adequate protection.
- Employees shall be provided, at no cost, protective work clothing and equipment including cotton coveralls or similar full-body clothing, gloves, hats, shoes or disposable shoe coverlets, face shields, vented goggles, or other appropriate PPE.

6.1.5 OSHA Table 1

Equipment/Task	Engineering and Work Practice Control Methods	Respirator Requirements and Minimum Assigned Protection Factor (APF) for 4 Hours or Less	Respirator Requirements and Minimum Assigned Protection Factor (APF) for More Than 4 Hours
Stationary masonry saws 	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	(None required)	(None required)
Handheld power saws (any blade diameter) 	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions:		
	- When used outdoors	(None required)	(APF 10 required)
	- When used indoors or in an enclosed area	(APF 10 required)	(APF 10 required)

Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less) 	For tasks performed outdoors only: • Use saw equipped with commercially available dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the airflow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency.	(None required)	(None required)
Walk-behind saws 	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions:		
	- When used outdoors	(None required)	(None required)
	- When used indoors or in an enclosed area	(APF 10 required)	(APF 10 required)

Drivable saws 	For tasks performed outdoors only: • Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	(None required)	(None required)
Rig-mounted core saws or drills 	• Use tool equipped with integrated water delivery system that supplies water to cutting surface. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	(None required)	(None required)

Handheld and stand-mounted drills (including impact and rotary hammer drills) 	• Use drill equipped with commercially available shroud or cowling with dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the airflow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. • Use a HEPA-filtered vacuum when cleaning holes.	(None required)	(None required)
Dowel drilling rigs for concrete 	For tasks performed outdoors only: • Use shroud around drill bit with a dust collection system. Dust collector must have a filter with 99% or greater efficiency and a filter-cleaning mechanism. • Use a HEPA-filtered vacuum when cleaning holes.	(APF 10 required)	(APF 10 required)

Vehicle-mounted drilling rigs for rock and concrete 	Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector.	(None required)	(None required)
	OR		
	Operate from within an enclosed cab and use water for dust suppression on drill bit.	(None required)	(None required)

Jackhammers and handheld powered chipping tools 	Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact:		
	- When used outdoors	(None required)	(APF 10 required)
	- When used indoors or in an enclosed area	(APF 10 required)	(APF 10 required)
	OR		
	• Use tool equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the airflow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism:		
	- When used outdoors	(None required)	(APF 10 required)
	- When used indoors or in an enclosed area	(APF 10 required)	(APF 10 required)

Handheld grinders for mortar removal (i.e., tuckpointing) 	• Use grinder equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	(APF 10 required)	(APF 25 required)

Handheld grinders for uses other than mortar removal 	For tasks performed outdoors only: • Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	(None required)	(None required)
	OR		
	• Use grinder equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism:		
	- When used outdoors	(None required)	(None required)
	- When used indoors or in an enclosed area	(None required)	(APF 10 required)

Walk-behind milling machines and floor grinders 	• Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	(None required)	(None required)
	OR		
	• Use machine equipped with dust collection system recommended by the manufacturer. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the airflow recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. • When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.	(None required)	(None required)
Small drivable milling machines (less than half-lane) 	• Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant. • Operate and maintain machine to minimize dust emissions.	(None required)	(None required)

Large drivable milling machines (half-lane and larger) 	For cuts of any depth on asphalt only: • Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. • Operate and maintain machine to minimize dust emissions.	(None required)	(None required)
	For cuts of four inches in depth or less on any substrate: • Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. • Operate and maintain machine to minimize dust emissions.	(None required)	(None required)
	OR		
	• Use a machine equipped with supplemental water spray designed to suppress dust. Water must be combined with a surfactant. • Operate and maintain machine to minimize dust emissions.	(None required)	(None required)
Crushing machines 	• Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyors, sieves/sizing or vibrating components, and discharge points). • Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions. • Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote control station.	(None required)	(None required)

Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials 	Operate equipment from within an enclosed cab.	(None required)	(None required)
	When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.	(None required)	(None required)
Heavy equipment and utility vehicles for tasks such as grading and excavating but not including: Demolishing, abrading, or fracturing silica-containing materials 	Apply water and/or dust suppressants as necessary to minimize dust emissions.	(None required)	(None required)
	OR		
	When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.	(None required)	(None required)